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Original Articles

SOME ASPECTS OF THE "MORAL TREATMENT" OF THE INSANE UP TO 1854*

By

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I SHOULD like to congratulate the Council of the Section on their decision to devote an evening to a historical subject. I cannot, I fear, congratulate them on their choice of a speaker, for I have done no more than scratch the surface of a very obvious period in the history of psychiatry. However, any sort of historical paper must be better than none, for as far as I have been able to ascertain no such paper has ever been read in this Section, with the exception of the Presidential Address delivered by the late Dr. Hubert Norman. Until a few months ago, exactly the same was true of the Section of the History of Medicine, but in recent months we have had two welcome and refreshing papers by Dr. Burns and Dr. Zelmanowits. We have had, too, the brilliant Maudsley Lectures by Prof. Lewis and Dr. Rees Thomas. Perhaps we may take it that these are signs of a renewed interest in the history of our specialty. I am sure that no branch of medicine needs it more.

I want to read to you two passages written within twenty years of each other, round about the turn of the 18th and 19th centuries. For the moment I shall not disclose their authorship; I will only say that the work from which one is taken is as famous as the other is obscure:

> "Here all unnecessary confinement is avoided. The physician having prescribed a diet adapted to the state of the body, we endeavour to second his purpose by presenting objects of amusement, directing the attention and humouring the imagination in those little sallies which sometimes indicate a desire of mental exertion. Exercise, when they will bear it, is given to them; and every appearance of restraint avoided. Coercion is never used but when absolutely requisite and is abandoned as soon as possible. Every indulgence, as far as is consistent with physical and medical operation, is allowed; and it will not be wondered at that, treated as a rational creature, with attention and humanity, amused and managed with art, the patient should regain his rational faculties, recur to his former habits and gradually become himself again."

And here is the second passage:

> "A young girl who had been admitted in a state of stupor and near-idiocy, brought on by private frustrations and sorrows, had recovered and was now physically well-nourished. During her convalescence however she obstinately refused to do any work; so as a punish-

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* Read at a meeting of the Section of Psychiatry of the Royal Society of Medicine, 9 February, 1954.

ment the superintendent had her taken down to the lower courts with the deteriorated patients; but she seemed to make light of this kind of repression, and did nothing but jump about, dance and mock at everything. So a special corset with straps was applied to her, exerting a moderate backward pull on her shoulders. She braced herself at first and stood the ordeal for a whole day; but in the end the coercion she was suffering made her beg for mercy, and from then on she consented to apply herself to needlework. Whenever she was inclined to slacken she was laughingly reminded of her 'little velvet waistcoat' and she at once became tractable."

I think you will agree with me that these passages are worth reflecting upon. They were written, as I have said, within twenty years of each other; but the first passage is the earlier, not as one might expect, the later of the two. And now the authors. The first passage is by Faulkner, the obscure proprietor of a private madhouse, writing in 1789; and the application of the "little velvet waistcoat" to a convalescent girl who would not work was carried out by the great liberator, Pinel himself.

I have brought forward this paradox in order to support a plea for a re-examination and reassessment of the literature, tendencies and teachings of the period. The prevalent conception of the century from 1754 to 1854 is a somewhat naïve one, conceived too much in terms of black and white, of enlightenment and obscurantism, of hero and villain. I believe that these contrasts were much less violent and progress much more irregular; that good and bad existed together in those who have been canonized as reformers and in many of those who have not.

To begin with, the idea of universal barbarity in England in the late 18th century is at variance with certain facts well known in literary history, though neglected by medical historians. I have in mind William Cowper's voluntary stay in 1763 at Nathaniel Cotton's "Collegium Insanorum" at St. Albans,* which he left with feelings of the utmost gratitude and friendship, and Charles Lamb's six weeks spent "very pleasantly", as he says, in a madhouse at Hoxton. In 1796, the year of the opening of The Retreat, Mary Lamb entered the same house after her act of matricide. One must note that she was never put on trial, much less did she have to undergo the test of the McNaghton rules; a simple verdict of "lunacy" returned by the coroner's jury was enough to exempt her from capital punishment, and a little influence on the part of her brother's friends resulted in her being handed over to his care. Mary, of course, returned again and again to the madhouse, sometimes indeed weeping and carrying her strait-jacket with her; but no mention of cruelty or ill-treatment of her is to be found in the writings of Lamb himself or his biographers.

There is then nothing to suggest that either Cowper or the Lambs were subjected to barbarous treatment. How valuable if we could have had an account of their illness from the doctors who treated them! But we do possess a number of contemporary works dealing with the treatment of mental disorder in England, and these I believe have been badly neglected as sources of information. I propose to take down from the shelves some of those which seem to me the most significant for the study of what was for long called the "moral" treatment of the insane. For want of time and learning I must confine myself to England, with an occasional excursion to Scotland and France.

The Meaning of "Moral"

First a word about the term "moral". Since today we use the term almost entirely in the sense of "ethical" it is hard to believe that "moral treatment" was not necessarily synonymous with kind or humane treatment. The word

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* This was the year in which a Committee of the House of Commons enquired into the state of the private madhouses.

"moral" was taken in its much broader sense of "psychological" as opposed to physical; I believe this use is really a gallicism, for up to the translation of Pinel's work, treatment other than medicinal is always called "management", but after 1806 we hear of "moral management" and "moral treatment"; up to about 1840, however, severe and mild methods are described indiscriminately under this heading; it is only later that some authors claim to use "moral treatment" as *opposed* to coercion.

I may perhaps allow myself a further digression to remind you of yet a third meaning of the word "moral"—that which was in the mind of James Prichard when he introduced the diagnosis of "moral insanity". In this context the term moral was meant to be equivalent to that of "affective-conative", as opposed to cognitive or intellectual. Sir David Henderson has pointed out that much of what we now call manic-depressive psychosis was included under "moral insanity" by Prichard; I would go further and suggest that all or nearly all of his cases were either manic-depressives or obsessionals. Prichard expressly states that in his view affective and conative abnormalities are inseparable:

> "Propensities are so nearly allied to passions and emotions that they are generally referred to the same division of the faculties. In my classification the disorders of affection or feeling, as well as those of the active powers or propensities, are comprehended under one head to which the designation of Moral Insanity is given."

Many of his cases were frank manic-depressives:

> "The most frequent forms of the disease are those which are characterized by the kind of excitement already described or by the opposite state of melancholy dejection."

It will be remembered that at the time the term "monomania" was used for melancholia accompanied by a single fixed delusion, and Prichard remarks:

> "The state of the feelings in monomania and moral insanity is the same; monomania is only moral insanity with the addition of disorder affecting the understanding or the rational powers."

He goes on to speak of "that variety of moral insanity which consists in undue excitement, a disposition to boisterous mirth, wildness of conduct and deportment". He includes also cases of "impulse to commit some atrocious act—an impulse resisted by reason and confessed with grief and alarm"—presumably arising in depressives or obsessionals. I can find little to support the notion that he described the "moral defective" of later years or the "psychopath" of today.

BATTIE AND MONRO

I now open my source-book at the year 1758 when William Battie, physician to the then newly-established St. Luke's Hospital wrote his *Treatise on Madness*. This work was held to imply a criticism of the practices of the senior hospital, Bethlem; so before the year was out the physician to Bethlem, John Monro, countered with his *Remarks on Dr. Battie's Treatise*, and we may take the two works together.

Both authors are convinced of the importance of "management".

Battie says:

> "The regimen in this is perhaps of more importance than in any distemper. It was the saying of a very eminent practitioner in such cases that management did much more than medicine; and repeated experience has convinced me that confinement alone is often-times sufficient, but always so necessary, that without it every method hitherto devised for the cure of madness would be ineffectual. Madness then, considered as delusive Sensation unconnected with any other symptom, requires the patient being removed from all objects that act forcibly upon the nerves, and excite too lively a perception of things, more especially from such objects as are known causes of his disorder; for the same reason as rest is recommended to bodies fatigued, and the not attempting to walk when the ancles are strained.

> "The visits therefore of affecting friends as well as enemies, and the impertinent curiosity of those, who think it pastime to converse with madmen and to play upon their passions, ought strictly to be forbidden.
>
> "Every unruly appetite must be checked, every fixed imagination must if possible be diverted. The patient's body and place of residence is carefully to be kept clean: the air he breathes should be dry and free from noisom steams: his food easy of digestion and simple, neither spirituous, nor high seasoned and full of poignancy: his amusements not too engaging nor too long continued, but rendered more agreeable by a well timed variety. Lastly his employment should be about such things as are rather indifferent, and which approach the nearest to an intermediate state (if such there be) between pleasure and anxiety."

Monro is more explicit as to his attitude towards his patients:

> "Great art should be made use of in breaking all ill habits, and they should be checked, if their conversation runs too much on one subject. The physician should never deceive them in anything, but more especially with regard to their distemper; for as they are generally conscious of it themselves, they acquire a kind of reverence for those who know it; and by letting them see, that he is thoroughly acquainted with their complaint, he may very often gain such an ascendant over them, that they will readily follow his directions. They should be accustomed to obey, and though talked to kindly, it should still be with authority. They should be used with the greatest tenderness and affection, nor, were it possible to prevent it, should their attendants ever be suffered to behave otherwise to them; when they do, they betray their trust; much less should they on any account endeavour to make them do what is required by frightening them, for though they may sometimes compass their ends by such means, it is never without danger, and has often added to the misery of the unhappy patient.
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> "It is likewise a good general rule not to permit their friends to visit them, but would those, who intrust their relations to our care, put so much confidence in the physician, as to let him judge the propriety, it need not be always rigorously observed; there are times, when such visits are highly detrimental, yet they may be sometimes permitted without any bad consequences, and I have frequently known them of service; but all this should be submitted to the judgment of the physician; who, if he has that honour and humanity he ought to have, will act as much like a friend as a physician in such deplorable cases.
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> "I should scarce have thought it worth while, under this head, to have mentioned cleanliness as a necessary article, since nothing but the most gross and unpardonable negligence, can leave any one to suffer by the want of it, in this, or any other distemper.
>
> "With regard to management, it is sometimes of consequence to know the cause of the disorder; not so much to direct us in the choice of medicines, as in the manner of conducting ourselves towards the patient: everyone is not to be accosted in the same manner, some are to be commanded, others are to be soothed into compliance, but we should endeavour in every instance to gain their good opinion. It is impossible to be so full on this subject, as not to leave many things unsaid; much will depend upon the care and attention of the physician, whose method must vary according to the complaints of his patients; in this branch, neglect or ignorance will admit of no excuse: and I am very sure that management has not yet reached the perfection of which it is capable."

Battie, rather tentatively, suggests a specific form of psychotherapy derived from the classics:

> "As to the seventh class of remoter causes, viz. tumultuous and spasmodic passions, such as joy and anger, in case the patient is not in immediate danger of his life, nothing of any great consequence is to be done at first; in hopes that these passions and their muscular effects, will as they are frequently known to do, subside of themselves. But, whenever anceps remedium is the indication, after sufficient depletion and diminution of maniacal pressure thereby occasioned, we must have recourse to the specific, that is to the unaccountably narcotic virtues of the poppy. If any one particular passion seems to engross the man or continues beyond its usual period, in such cases the discretion of the physician must determine how far it may be advisable or safe to stifle it by a contrary passion. I say safe, because it is almost impossible by general reasoning to foretell what will be the effect of fear substituted in the room of anger or sorrow immediately succeeding to joy.
>
> "When the ninth class of remoter causes demands our care, viz. unwearied attention to any one object, as also love, grief and despair; any of these affections will sometimes be annihilated by the tumultuous but less dangerous and sooner subsiding passions of anger or joy. But, if such instantaneous alteration from one extreme to the other appears either not feasible or too shocking to be attempted with safety; bodily pain may be excited to as good a purpose and without any the least danger. It being a known observation, though as much out of the reach of human reasons are most others which occur in the animal economy, that no two different perceptions can subsist at the same time any more than the two different species of morbid muscular action, viz. the convulsive and the constrictive. Therefore vesicatories, caustics, vomits, rough cathartics, and errhines, may be and in fact often are serviceable inasmuch as they all relieve and divert the mind from its delirious attention, or from the bewitching passions of love, grief, and despair."

To which Monro replies with derision:

> "And if notwithstanding these judicious applications the case should still prove obstinate, the physician is then to determine, how far it may be safe to substitute fear in the room of anger, or make sorrow succeed to joy! The first, I am certain, is dangerous, and the last contradictory to common sense: a surgeon might as well pretend, that to break a man's arm was the most effectual cure for a broken leg.
>
> "The doctrine of substituting one passion for another is of a very ancient date, but I will never subscribe to the errors of antiquity, in opposition to experience, reason and common sense. It has indeed been known that fright and passions of the mind suddenly excited, have produced very good effects in some cases; but we are not from thence to conclude, that they ought to be prescribed; for were the history of their good and bad effects fairly led before us, we should see the balance greatly on the side of the latter."

But Battie, I think, has the last word in this remarkable foreshadowing of a more modern therapy:

> "Although it would be no easy task to persuade or even to force any person, whether a lunatic or not, who has long indulged in idleness, to put his body in motion; nevertheless this state of inactivity may be artificially broke by vomits, rough cathartics, errhines, or any other irritating medicines: which in this case therefore answer more than one intention, and not only discharge or dislodge the delirious load of stagnating fluids, but also by their convulsive influence upon the muscles of the abdomen and indeed upon every animal fibre of the agitated body crowd as it were a great deal of exercise into a small portion of time, and that without the consent of the patient, or even the trouble of contradicting his lazy inclinations."

William Perfect

From this early controversy, in which we shall probably take sides according to our present inclinations, I pass to one of the most significant of 18th century authors, William Perfect, of West Malling, an early member of the Medical Society of London. His *Annals of Insanity*, first published in 1787, contains careful clinical descriptions of over 100 cases, and was warmly praised by Pinel, whose only criticism was that Perfect had not ventured to build up his observations into any kind of system.

Among Perfect's cases is an almost certain one of G.P.I. and several of schizophrenia. His treatment was mostly medicinal (including electric shocks!) and he has little to say about moral management, but the following lines from his preface may be quoted:

> "Humanity has taught the author of the following pages, to treat all those, who through the severity of their afflictions, have been placed under his care, with the most complacent assiduity; and whenever he has been obliged to use a different plan, it has been with regret and reluctance; notwithstanding he was convinced of the necessity there was to adopt such measures."

In reading his cases one is enormously impressed by his resourcefulness in medical treatment and his assiduous watchfulness of the day-to-day progress of his mostly acute patients. If his instructions were really carried out as he describes them, he must certainly have had a skilled and devoted staff under his control.

In one case he liberated from his chains a maniacal patient confined in a workhouse:

> "In the year 1776, the parish officers of Frindsbury applied to me for advice in the case of a maniacal patient confined in their workhouse. This unhappy object had been very desperate and had committed many acts of outrage and violence; was naturally of strong, muscular shape, and rendered much stronger by his present complaint. He had overpowered almost everyone before they could properly secure him, which was now effected in a very extraordinary manner. He was fastened to the floor by means of a staple and iron ring, which was tied to a pair of fetters about his legs, and he was hand-cuffed. The place of his confinement was a large lower room, occasionally made use of for a kitchen, and which opened into the street; there were wooden bars to the windows, through the spaces of which continual visitors were observing, pointing at, ridiculing, and irritating the poor maniac, who thus became a spectacle of public sport and amusement.
>
> "I was requested to take him immediately home to my house; but as the poor wretch was in a highly infuriate state, and that in great measure occasioned by the unsuitableness of his

> situation, my advice was to take off his shackles and secure him in a strong strait-waistcoat . . . it was also my advice to have a small hovel built for his solitary residence, in the most remote part of the premises at a distance from the workhouse, and to prohibit all persons from going near enough to converse with him, but those who should be appointed to the charge of attending him. Proper attention being paid to his person and diet, in a few weeks the patient entirely recovered his reason; and begging hard to be released from his confinement, after I had been again consulted, it was granted, when he quietly and regularly returned to his labour and employment; and I have not heard of his having had any relapse."

Now Pinel must have read Perfect's work shortly after its appearance, and it is not fanciful to suggest that this case may have influenced him in his own actions a few years later; at any rate we know that Pinel gave much thought to the lessons to be derived from individual cases; we know also that Pinel adopted from Perfect at least one form of treatment, the use as a remedy of soft drinks —"les boissons acidulées ou émulsionées" to which we may even think he attached somewhat exaggerated importance.

FAULKNER

Perfect was of course connected with a private madhouse, and so one may suspect an element of self-advertisement in his book. We now come to the small booklet, written in 1789 by one Benjamin Faulkner from which my first quotation was taken. He is sometimes mentioned as a medical authority, but he was in fact merely the lay proprietor of a private madhouse, and his booklet entitled *Observations on the General and Improper Treatment of Insanity* is an unabashed invitation to the public to patronize his house rather than any owned by recognized mental specialists. Writing immediately after King George III's recovery from his first attack of mania, he is echoing the current controversies between the supporters of Willis and those of non-specialist physicians.

> "In whatever way, therefore, the mind may be affected, let the friends of the patient avoid this indiscreet and indecent precipitancy. If it be found necessary to call in a physician, let them not imagine that the knowledge necessary to treat this disorder, is confined to a few individuals. Let them consult a FORDYCE, a BAKER, a WARREN, or a REYNOLDS; men whose knowledge cannot be surpassed, whose integrity is unimpeachable, and who can derive no advantage from the local situation of the afflicted.
>
> "If, for family convenience, a necessary change of air, or quiet retirement, any of these gentlemen advise a removal to a house appropriated to the reception of such patients, they will mention some free house, by which is to be understood a house into which any physician may be called, where any friends may visit, and where the patient is attended by those who can only follow the directions of his physician, whose best advantage results from a speedy cure; a house pleasantly situated, and so managed as to create no horror in the mind of the patient.
>
> "My having kept such a house several years, with a degree of reputation flattering to myself, and useful to society, may prompt me to speak with fervour, but it enables me to speak with truth and candour, and to point out to the public the alarming consequences arising from the too common method adopted respecting the insane, and adding so considerably to their numbers."

Was Faulkner sincere? Was his house as good as, say, Nathaniel Cotton's, or his claim mere advertising humbug? Perhaps this point is not very important. If hypocrisy is the tribute that vice pays to virtue, then the writings of hypocrites tell us what virtues are in general esteem and so are considered worth paying tribute to. That Faulkner should have advertised his house in those particular terms shows that there was already at the time a demand—though not yet an insistent demand—for humane care and active treatment.

ANDREW HARPER

We find what seems a more genuine profession of humane principles in a medical work of the same year. *A Treatise on the Real Cause and Cure of*

Insanity by Andrew Harper. Harper writes as a physician who presumably had no in-patient beds at his disposal. He therefore advocates home treatment, and gives the following advice:

> "The third indication, which is to diminish the acuteness of sensorial modulation and nervous motion, by procuring sedative effects, is obtained by means of exercise, change of air, *licentia veneris*, the warm bath, music and sleep. All these have a powerful tendency to take off mental irritation, and consequently to remove, or lessen the aptitude to paroxysms.
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> "The degree of exercise should be very considerable and ought to be continued regularly till it occasions lassitude and hunger.
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> "Moderate *licentia veneris* is particularly calculated to compose the mental faculty, and its propriety is obvious in different points of view.
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> "The warm bath, or semicupium, as a gentle relaxant, may be used now and then, especially if the skin be dry and the habit tense.
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> "The aid of music, particularly that kind which is most agreeable to the patient, should be employed, as it opens the secretions, and by harmonizing the movements of the mind, gives the nervous power a gentle, nervous impulse. Yet if the patient has been excessively fond of music, it might, in that case, possibly be hurtful, by reason of its being too consonant to the morbid train of ideas, or the prevailing mental note."

He goes on to state his general principles:

> "The custom of immediately consigning the unfortunate victims of Insanity to the cells of Bedlam, or the dreary mansions of some private confinement, is certainly big with ignorance and absurdity. This practice, 'tis true, may answer the purpose of private interest, and domestic conveniency, but at the same time it destroys all the obligations of humanity, robs the sufferer of every advantage, and deprives him of all the favourable circumstances which might tend to his recovery. I am very positive that Insanity may be cured with great certainty and expedition, in the beginning, and I am equally convinced that confinement never fails to aggravate the disease. A state of coercion is a state of torture from which the mind under any circumstances revolts. In the worst cases, where some sort of restraint is indespensibly necessary, the patient's hands should only be muffled or manacled, and the whole range of an undarkened room should be assigned for his use. Confinement thwarts every salutary purpose, and defeats every effort which nature makes. If it were possible to give full scope to the extravagant humours and excentric vagaries of incipient Insanity, I can conceive it very probable that the mind would pursue the fantastic delusion, through the path of distracted ideas, till the power of mental action being spent, and the corporal system materially changed, the tumultuary motions would consequently cease, and the calm serenity of established reason resume its natural influence."

Though somewhat conjectural, this is, as Aubrey Lewis says, indeed admirable doctrine for the times.

WILLIAM PARGETER

Pargeter published his *Observations on Maniacal Disorders* in 1792. He, too, professes humane principles, and he has his own views on the madhouse problem, very much the opposite of Faulkner's:

> "The subject of private mad-houses requires some consideration. The conduct of public hospitals or institutions, for the reception of lunatics, needs no remark; the excellence in the management of them, is its own encomium. We will consider private mad-houses then, as kept and superintended by two different descriptions of persons. First there are those houses which are under the immediate inspection and management of regular physicians, or other medical men, or clergymen. Secondly, those houses which are under the direction and care of men, who have just pecuniary powers sufficient to obtain a licence, and set themselves up keepers of private mad-houses; assuring the public, in an advertisement, that the patients will be treated with the best medical skill and attention, &c. when at the same time they are totally devoid of all physical knowledge and experience, and in other respects extremely ignorant, and perhaps exceedingly illiterate; and probably without one qualification for so important an undertaking. It will not admit of a moment's hesitation therefore, to which of these two characters we would entrust an insane friend. In the care of the first description of men, we may reasonably, and I will venture to say, securely trust, that the afflicted will be judiciously and tenderly treated and also managed by servants selected and instructed with such judgement, as will make them zealous of their own character and reputation, as of the honour of their employer. In such hands we may place an implicit confidence; and a perfect assurance, that in such an abode dwells nothing offensive or obnoxious to humanity—here, no greedy heir, no interested relations will be permitted to compute a time for the patient's fate to afford them an opportunity to pillage and to plunder. But such dwellings are the seats of honour—courtesy—kindness—gentleness—mercy, and whatsoever things are honest and of good report.

> But in those receptacles for the unhappy maniacs as are mentioned in the second place, it cannot be supposed that any very great advantage in favour of the patient can be hoped for, or obtained; when compassion, as well as integrity, in those houses, is oftentimes to be suspected: this truth is as notorious as it is lamentable."

Pargeter gives management the first place in the cure of insanity, and he emphasizes a principle which we shall meet again and again—that of obtaining what was called an "ascendancy" over the patient; sometimes this was understood as an influence gained by peaceful means, but this was not always so, and the two motives of humanity and "ascendancy" are heard in uneasy counterpoint for many years to come. This is how Pargeter himself puts it:

> "The chief reliance in the cure of insanity must be rather on management than medicine.
>
> "The government of maniacs is an art, not to be acquired without long experience and frequent and attentive observation. Although it has been of late years much advanced it is still capable of improvement. As maniacs are extremely subdolous, the physician's first visit should be by surprise. He must employ every moment of his time by mildness or menaces, as circumstances direct, to gain an ascendancy over them, and to obtain their favour and prepossession. If this opportunity be lost, it will be difficult, if not impossible, to effect it afterwards; and more especially, if he should betray any signs of timidity. He should be well acquainted with the pathology of the disease—should possess great acumen—a discerning and penetrating eye—much humanity and courtesy—an even disposition, and command of temper. He may be obliged at one moment, according to the exigency of the case, to be placid and accommodating in his manners, and the next, angry and absolute."

Pargeter prides himself on his knack of subduing the patient by "catching his eye" at the moment of their first meeting, and this was also used by Willis, though Haslam, as we shall see, held all such devices in contempt.

FRANCIS WILLIS

Of Francis Willis, who attended George III in the winter of 1788-89, it was claimed that

> "his countenance, usually affable and smiling, changed completely when he first cast his eyes upon a patient; he at once commanded the patient's attention and respect and seemed to penetrate into his heart and read his thoughts; thus he acquired a dominion which he used as a means of cure; but however much awe he might inspire, his patients always came to love him in the end."

Unfortunately our only source of information about the methods he used at his establishment in Lincolnshire is an article written by a foreign physician (perhaps De la Rive) and based on information given by two former patients. Hence we cannot really be certain whether he had as many as 200 patients farmed out in neighbouring villages, or whether the keepers were really encouraged to hit back *sans scrupule* at patients who attacked them.

> "In this state the mind is almost detached from all outside objects. One must therefore help the patient by means of strong stimuli, so as to fix his attention, for thus he is enabled to recover, first momentarily and then habitually, the power to direct attention at will; fear also causes him to reason correctly from effects to causes, from past to future."

Willis claimed to cure nine out of ten cases placed under treatment within three months of onset, though this was explained away later by his great-nephew, also named Francis Willis, as referring only to disorders of the same type as the King's—"febrile mental derangement" as he called it. I must perforce refrain from touching on the question of Willis's management of the King, mentioning only that no full psychiatric account of George III's illness has been written since Isaac Ray's article in 1845.

THOMAS ARNOLD

We are on much more certain ground with Thomas Arnold of Leicester, well known for his work *On the Nature, Kinds and Causes of Insanity*—an inveterate drawer up of schemes and categories, says Lewis. But he was also the author of a smaller work entitled *Observations on the Management of the Insane and particularly on the Importance of Humane and Kind Treatment in Effecting their Cure*. This was issued in 1809, but was based on over 40 years of practice at his own house, Belle Grove, and at the Leicester Asylum, founded in 1794. Like everyone else he uses mild coercion, but "with great judgment and caution, with a sparing, not a liberal hand". Ascendancy is to be gained by "determined authority as over children, not by severity, as over brutes". The patients should be well fed. Refusal of food is counteracted by well-invented plans, able management, importunate persuasion and endless perseverance. "We should yield in some measure to their insane propensities, while we are unwearied in our assiduity to draw them insensibly from them. We should spare no pains to gain their esteem and confidence; exercise, amusements and occupation are to be provided."

I can find little to choose between Arnold's methods and those claimed for the York Retreat, and I am not surprised that they should be coupled together in De la Rive's report, to be mentioned presently.

THE RETREAT

In the same year that the article on Willis appeared in the *Bibliotheca Britannica*, The Retreat at York opened for the reception of patients, and two years later the same publication printed a long letter from Dr. De la Rive, of Geneva, describing what he had seen on a visit there. De la Rive sets out to communicate "new facts and new means" on the subject of "the moral part of the treatment of the insane". It is not long, he says, since treatment was conducted with a shocking barbarity; but this will soon be abolished by a policy more enlightened and more humane, since experience has shown that a system of mildness is the surest means of restoring the patient's understanding.

As examples of establishments where these new principles are practised he again mentions that of Willis, and next that of Arnold at Leicester. These, however, were not available to the poor and for this reason the "respectable Society of Quakers" had lately endeavoured to remedy these ills, as far as its members were concerned, and to secure for them "all the resources of art and all the comforts of life compatible with their station". He had visited The Retreat in the company of Dr. Fowler, whom he calls the directing physician, and there follows a brief description of the visit, which is too well known to need quotation here. He then digresses into a long disquisition on mental disorders in general before returning to moral treatment. Although he began by praising a system of mildness, he now, in describing his visit, mentions with approval the use of fear and the necessity for authority and restraint; next come rewards and punishments judiciously distributed and the need for acquiring both ascendancy over the patients and their confidence. This serves to introduce the superintendent (George Jepson) who "appears to acquit himself very well in his office"; but De la Rive at once goes on to contemplate and commend the seclusion-rooms and the improved and humane means of restraint employed.

> "On the contrary, when he shows them that he knows the depth of their disease, he acquires an absolute dominion over them. Tho' authority be ever so necessary, it must however be tempered with kindness and tenderness: they generally feel a lively gratitude towards those who are interested about them. In large institutions, such as that of Dr. Willis, each patient has a keeper charged with exercising punishments, while the chief of the family dispenses favours and consolations. But this well contrived plan is very expensive, and in

the Institution of the Quakers near York, it was necessary to adopt other means. The person who has the chief care of the moral treatment of the patients is the superintendent of whom I have spoken: he is a well informed man, and appears to acquit himself very well in his office. In the galleries both above and below stairs are ranges of small lodging rooms. On the ground floor, there are cells in which the maniacs are confined in their fits of fury, during which time their liberty would be dangerous. A small window gives them light, of which they can be deprived at pleasure: a little door which opens to the outside, gives their keepers an opportunity of observing them, without their being able to perceive it. The only furniture of these neat and wainscotted rooms is a bed and a chair. The doors of the galleries have neither chains nor bolts. Thro' a proper regard to these distempered imaginations, which are but too much alarmed, everything which would recall the idea of a prison has been avoided. The locks have the appearance of common locks but they are made with a spring; and in pushing the door without noise, it shuts as with a key. This small attention spares the captive a painful humilation.

"Is the patient arrived at such a pitch of fury, that he would be in danger of hurting himself, it is then necessary to prevent him from using his strength, and to put on the strait jacket. In cases wherein his agitation is extreme, he is laid upon his bed in a horizontal position, with his head raised. This method has some inconvenience, which might be easily remedied. It has been observed that the situation of the patient is frequently made worse, when he is placed in a horizontal position. At Bedlam it has been remarked that, during the fits of fury, many maniacs have appeared to avoid this position carefully: if they feel themselves secured in bed, they endeavour to sit, and refuse to lie. We make no point of keeping maniacs in a horizontal position; they are more frequently allowed to walk in the day time. These beds of which there are but two have some resemblance to chests, about a foot deep, the sides of which are occasionally stuffed with flocks or straw. But in endeavouring to keep the patient in entire dependance, everything which could convey any idea of terror, has been carefully avoided. He is not fastened with cords, nor bound like a criminal. Two strong bandages are nailed to the floor and pass under the bed without his perceiving them: on the back of the waistcoat are two buckles which receive these bandages; the patient is in this manner more or less secured and has power at the same time to turn himself to the right or to the left. The feet are secured in like manner. He is thus kept under the greatest restraint, without appearing to be so. He is retained in bed by a kind of enchantment. He does not hesitate to acknowledge that he is at the discretion of those who surround him. This necessity which presses him on all sides soon subdues the most furious and malicious inclinations. An easy and ingenious method is made use of to keep him in a state of cleanliness, and remove every object of disgust, the effects of which might be hurtful in humiliating the patients, and in destroying the ideas of decency. This is the severest punishment that they employ, it is seldom that they have occasion to prolong it.

"The other part of the moral treatment consists in the use of agreeable and remunerative means. As soon as the patient is quiet, as soon as he is come to himself, they release him from restraint, they permit him to go out of his room, to walk in the open air once or twice (or oftener) a day, in a large court, surrounded by a wall. If he behaves well, he is preferred to a chamber on the first floor: this is a kind of honourable promotion, which excites his emulation. These rooms, larger and more agreeable than the cells, and provided with more furniture, display throughout the picture of neatness. This neatness is so much more important in this case, as it has attached to it the ideas of order, decency, happiness and respect both for ones self and others. Most of these rooms however shut like the cells; the windows are not grated, but the panels are small; and I was much astonished in observing that the frames which I had taken at a distance for wooden frames, by their colour and form, were of cast iron: the windows themselves so that the patient, without any appearance of restraint, has no means of escaping. The air is renewed by the windows being opened at the ends of the galleries. When the doors are open the air has a free course quite thro' the building.

"The favours that are granted to the patients if they behave well, consist in seeing their relations, visiting their friends, and visiting each other, walking about the house and gardens freely: for the greater safety of the neighbourhood, they are never permitted to go out of the enclosure without a guard.

"As soon as the patients are well enough to be employed, they endeavour to make them work. The women knit, sew, make beds, sweep the rooms, and the men do works of straw and twigs and other works of ingenuity according to their different capacity.

"The superintendent had made an experiment a few days before, which had answered very well. The house is surrounded by some acres of land which belong to it, he had undertaken to make the patients cultivate this land, giving to each a task proportioned to his strength, he found that they were fond of this exercise, and that they were much better, after a day spent in this work, than when they had remained in the house, even when they had had the liberty of taking a walk. Whilst at this work, they are always attended by some overseers. I went to see them at work; there were about 12 or 15 in number, and they appeared as content and satisfied as their condition would allow. This method of employing insane persons in cultivating the land, to cure them, is not new. Dr. Gregory relates that a farmer in the North of Scotland had acquired great reputation in the art of curing Insanity. He did not understand medicine; but he was a man of good sense, very vigorous and brutal enough. His method consisted simply in employing his patients in cultivating his land. Some served him for husbandmen, others for

> beasts of burden; he yoked them to his harrow and plough, after having reduced them to the most complete obedience by whipping, which he gave them on the first act of rebellion."
>
> "By these methods and some pharmaceutick remedies, Dr. Fowler told me that he had the happiness of restoring to their families many of the insane persons confided to his care.

De la Rive concludes with a paragraph which should be quoted in full:

> "You see, that in the moral treatment, they do not consider the patients as absolutely deprived of reason, that is to say, as inaccessible to the emotions of fear,* hope, sentiment and honour. They consider them, rather it seems, as children who have a superfluity of strength, and who would make a dangerous use of it. Their punishments and rewards must be immediate, because anything at a distance has no effect upon them. A new system of education must be adopted, to give a new course to their ideas: at first they must be subjected; afterwards encouraged, taught to work, and this work rendered agreeable to them by attractive means."

I should explain here that at the time this was written not more than 30 patients had been admitted to The Retreat since its opening, of whom only 8 were recent cases, and about 5 had been discharged. One could, therefore, hardly expect anything like a recognized practice to have been established yet. In general, however, De la Rive's impression seems to have been that The Retreat aimed at providing treatment equal to the best in the land, but that nothing really revolutionary was being attempted. This is borne out by the terms of the Resolution by which The Retreat was founded, and in which its object is stated to be to avoid the necessity for members of the Society of Friends to be "committed to the government of persons of other Societies by which means the state of their minds is rendered more dissatisfied and uncomfortable".

We may next ask whether in fact The Retreat did at any time practise methods of intimidation. Samuel Tuke in his famous *Description of the Retreat* published in 1813, gives in an appendix several extracts from De la Rive's letter, and at the words "At first they must be subjected," he has a footnote, "If this maxim was ever acted upon at the Retreat, it is now in great measure exploded."

In the body of the work his views on fear and coercion are clearly set out.

> "The principle of fear, which is rarely decreased by insanity, is considered as of great importance in the management of the patients. But it is not allowed to be excited, beyond that degree which naturally arises from the necessary regulations of the family. Neither chains nor corporal punishments are tolerated on any pretext, in this establishment."
>
> "They quickly perceive, or if not, they are informed on the first occasion, that their treatment depends, in great measure, upon their conduct. Coercion thus flowing as a sort of necessary consequence of their conduct and being executed in a manner which marks the reluctance of the attendant, it seldom exasperates the violence of the patient, or produces that feverish and sometimes furious irritability, in which the maniacal character is completely developed; and under which all power of self-control is utterly lost."
>
> "It is wise to excite, as much as possible, the operation of superior motives, namely self-esteem, and fear ought only to be induced when a necessary object cannot otherwise be obtained."

This is all from the 1813 *Description*. However, there exists another, much less well known report published in 1828, and entitled *A Sketch of the Origin, Progress and Present State of the Retreat*, which must have been drawn up either by Samuel Tuke or with his approval, and here the sequence of events is set out in greater detail as follows:

> "Here it may not be unsuitable to state the views of improvement in the treatment of Lunatics, entertained by the original promoters of the Establishment. Whilst sensible that great abuses existed, in many houses devoted to the treatment of the Insane, they imagined also, that there were others from whose practice they might derive the results of an enlightened experience; and by whose instructions they might safely, in great measure, be guided in the main principles of their moral and medical treatment. The basis of the system at that time generally adopted, was the position, that fear is the great principle by which the insane are to

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* The word "fear" was *omitted* when this passage was quoted in The Retreat's Centenary publication *Reform in the Treatment of the Insane*, written in 1892 by D. Hack Tuke; in his "Chapters in the History of the Insane" the passage is correctly given, in French.

> be governed and the practical consequences deduced from it, were, that their attendants should commence their intercourse with them, by an appearance of austerity, and perhaps the display of personal prowess; in fact, that in some cases of violent excitement, the cudgel and the whip were the most suitable instruments of coercion.
>
> "We believe it may be said, that the Retreat commenced with an assent to the general correctness of these views; and though they could not fail to be modified by the good sense and feeling of the Committee of Management, it must be admitted, that they were acted upon to an extent, which, with our present knowledge, we can hardly contemplate without surprise.
>
> "The investigating mind of George Jepson, had often, previously to his appointment of Superintendent, led him to query the beneficial effects resulting from this system of management; he had observed that wild animals were the most easily tamed by gentle methods; and judging by analogy, he inferred that man bereft of reason might be influenced by the same means. His own experience was at this time too slight to warrant him in discarding a system, sanctioned by general adoption. Yet on an occasion soon after his introduction into office, after the exercise of some severity towards a violent patient, he passed a sleepless night in anxious cogitations. He felt satisfied that his mode of treatment in this case, had tended to irritate rather than control the patient's diseased feelings; and he determined to try the effect of an opposite system. In this conclusion he was strengthened by his observations, made in visiting two of the large establishments in the metropolis, and one in the vicinity of this city. Following steadily, but cautiously, the guidance of his judgment and his feelings his observation and experience soon led him to abandon the system of terror, and to adopt that which presumed the patient to be generally capable of influence, through the kindly affections of the heart; and also in considerable degree through the medium of the understanding."

It seems therefore that the founders of The Retreat did practise severities on their patients, under the impression that this was the only possible system; and that on further enquiry they found that humane treatment did exist elsewhere. We may perhaps connect this with Tuke's statement in the 1813 book that The Retreat at an early period derived advantage from the first edition of Haslam's *Observations on Insanity*. It would appear then that at the time of De la Rive's visit The Retreat was in a state of transition, which would account for his rather tepid and equivocal praise of what he saw.

Even as late as 1841, John Thurnam in a *Statistical Report of the Retreat* again refers to the use of fear, though by now it has been reduced to fear of the loss of privileges:

> "The primary object . . . has been that of cultivating in the patient the moral sense of right and wrong, the power of self-restraint and the remaining mental faculties as much as practicable. This has been effected in numerous instances, by appealing to, and encouraging the natural feelings of love of approbation, and self-respect; which, under different forms, and in various degrees, appear to be common to mankind under all circumstances; and which are seldom altogether obliterated even in a state of insanity; unless, indeed, in very old and confirmed cases of the disorder, chiefly of the fatuous kind. A uniformly kind manner, and considerate conduct towards the insane; a strict attention to their often morbidly sensitive feelings; treating them, in fine, as much as possible as though they were sane and as responsible beings, are the means which have been, and still are, found most successful in winning their confidence.
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> "The effects of a patient, sympathizing, and hopeful demeanour towards the depressed and melancholy appear fully to warrant the statement that 'in the treatment of nervous cases, he is the best physician, who is the most ingenious inspirer of hope.'
>
> "Notwithstanding what has been said of the abuse of the passion of fear in the treatment of the insane, there has been sufficient evidence at the Retreat, that, particularly in cases of violent and perverse insanity, its influence is not to be altogether disregarded. Indeed the use, which has been alluded to, of the feeling of hope, almost necessarily implies that of its opposite, fear, and it is no doubt true that on the one hand the hope of acquiring, and on the other the fear of losing, those greater degrees of liberty and comforts which are granted upon the appearance of amendment, have a beneficial action and reaction, both on the patient as a body, and even on the same individual.
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> "The practice which has long prevailed at the Retreat of not reasoning with patients on the subject of their several hallucinations, and the substitution, for this generally worse than futile practice, of various indirect means adapted to 'seduce the mind from its favourite but unhappy musings', is now generally recognized as correct."

Apart from this, the 1813 *Description* is of course the great classic of humane treatment, and its publication coming as it did just before the disclosure of grievous abuses elsewhere, had more influence than that of any other work written in this country. I am assuming that it is so well known as not to need quotation of more than a very few passages which have a bearing on other works, particularly those which refer to Pinel and to Haslam.

> "Whatever theory we maintain in regard to the remote causes of insanity, we must consider moral treatment or management, of very high importance."
>
> "Experience, however, has happily shown, in the Institution whose practices we are attempting to describe, that much may be done towards the cure and alleviation of insanity, by judicious modes of management, and moral treatment. The superintendent, who is also the apothecary of the Retreat, after more than fifteen years experience, fully unites with the intelligent Dr. Pinel, in his comparative estimate of moral and medical means."
>
> "The existence of the benevolent affections, is often strongly evidenced, by the patients' attachment to those who have the immediate care of them, and who treat them with judgment and humanity. The apothecary to Bethlem Hospital (Haslam) says: 'I can truly declare, that by gentleness of manner, and kindness of treatment, I have seldom failed to obtain the confidence, and conciliate the esteem, of insane persons; and have succeeded by these means in procuring from them respect and obedience.' The superintendents of the Retreat give precisely the same evidence, and I firmly believe, that a large majority of the instances, in which the malevolent dispositions are peculiarly apparent, and are considered as characterizing the disorder, may readily be traced to secondary causes; arising from the peculiar circumstances of the patient, or from the mode of management."

On the subject of coercion:

> "With regard to the second point, the necessity of coercion, I have no hesitation in saying, that it will diminish or increase, as the moral treatment of the patient is more or less judicious. We cannot, however, anticipate that the most enlightened and ingenious humanity, will ever be able entirely to supersede the necessity of personal restraint."

He again quotes Haslam:

> "Coercion is considered, as the ingenious author of *Observations on Madness* says it should be, 'only as a protecting and salutary restraint'. The mode of it ought to be the subject of the consideration of its effect on the mind of the insane. Some means of coercion have obviously a greater tendency than others, to irritate or degrade the feelings. Hence, the use of chains has never been permitted in the Retreat."

PINEL

You will have noticed that Tuke refers repeatedly with approval to the works of Haslam, and in fact he has a footnote in which he says, as already mentioned, that "The Retreat, at an early period, derived advantage from the first edition of these *Observations*". We shall see now that Pinel also repeatedly quotes Haslam in support of his own views.

I remind you of a few dates concerning Pinel. He began his work at Bicêtre in 1793, when he performed his famous action of liberating a large number of patients from their chains. He published his *Traité de l'Aliénation Mentale* in 1801 and this was translated into English in 1806. He brought out a second edition in 1809; this, so re-written and enlarged as to be almost a different book, has never been translated in full. My quotations are all taken from this edition. He contributed the article on "Mental Alienation" to the *Dictionnaire des Sciences Médicales* published in 1812.

The universal judgment on his work and influence is well summed up by Friedreich, writing a few years after his death: "One can regard him as the founder of purposeful psychological treatment. He broke the chains, destroyed the dungeons and treated the insane in a humane and fatherly way. It was through him that all over Europe men came to be ashamed of the old harsh way of treating mental illness. Thus he became the deliverer, not only of his own patients, but of all who up to his time had languished in bondage."

Yet the Traité, in its sections on moral treatment, is a baffling work. Perhaps one may say that it reflects the changing and contradictory moods of the French Revolution and its sequel. Pinel liberates and cherishes the insane in the spirit of the Declaration of the Rights of Man; he goes into battle against the refractory with the fighting zest and hero-worship of a follower of Danton or of the young Bonaparte—and his hero is his own "superintendent" or chief male nurse, Pussin. And his emphasis on repression, order and "police intérieure" reminds us that the age of Napoleon was also the age of Fouché and Vidocq.*

"The insane", he says, "far from being delinquents to be punished, are sick people whose distressing state deserves all the care and consideration due to suffering humanity." Here are words which constitute a veritable charter for the mentally ill, and have often been quoted as such. But we must read to the end of the paragraph:

> "The insane, far from being delinquents to be punished, are sick people whose distressing state deserves all the care due to suffering humanity. We must seek by every simple means to restore their straying reason. They may become reduced to a state in which their intellectual functions are completely upset, and then they follow only a blind impulse which leads to disorder and to every kind of violence; in such cases there is no advice to be given; one can only provide for the patient's personal safety, and that of others, by detaining him in his room. If he shows extreme violence a camisole of strong material must be applied, to restrain the movements of his feet and hands and to keep him fixed to his bed by strong bands attached to the back of the garment and invisible to him. This state of extreme coercion must however be kept up for a short time only, so as to avoid the effects of anger directed against those around him, which would in fact only make his disorder worse. Certain serious and urgent circumstances may also call for a more energetic, but brief, repression."

And what are these serious and urgent circumstances? An example follows; and it is none other than the story of the "little velvet waistcoat" which I read to you previously, and which some of you may have recognized.

> "Another woman of 40 used to attack the staff, and on one occasion she threw an earthenware pot at a nurse, seriously wounding her. A waistcoat was at once applied to her; the straps were tightened and the shoulders smartly pulled back; she was not able to bear this coercion for more than an hour, when she begged for mercy, and since then she has never struck anyone, although she continued in a state of derangement for a long time. If she ever speaks abusively, it is enough to mention the camisole to her and she at once becomes orderly and quiet."

Pinel had quite a clear idea of the pain and distress he was inflicting:

> "This kind of repression can only be borne for a very limited time; for it soon leads to discomfort and breathing is greatly impeded; later there is nausea and unbearable anxiety; consequently the patient is obliged to give in, and he long retains the memory of what he has gone through. Of course such repression is never entrusted to the subordinate staff, only the chief can apply it, and he must give it his close superintendence.

Here is another example of "energetic repression":

> "A young person, from no known cause, fell into a dark morose state, and suspected everyone of wanting to poison her. An inopportune visit paid to her in hospital by a stranger made her melancholia worse, and she obstinately refused all food. The strait waistcoat was applied to force her to eat, but without success. We were compelled therefore to resort to the cold douche as a means of repression; she promised for the moment to do whatever she was told, but as soon as she was out of the bath she repeated her refusal. Next day her food was brought her while she was actually in the bath, and she was ordered to take it if she wanted to escape having more cold water poured on to her head; this time she obeyed willingly. She was then given marks of interest and spoken to consolingly; her confidence was gained; she became a willing worker and little by little her delusions and fantastic fears disappeared."

We shall meet the cold-water douche again forty years later, promoted to the position of moral treatment *par excellence*.

My next quotation is more typical of Pinel's outlook, and also brings out his relation to Haslam:

> "The most assiduous and indefatigable supervision must be exercised over the numerous patients who are either convalescent or in a state of lucid interval; one must keep them care-

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* This aspect of Pinel's methods has been discussed by Christine Buvat-Pochon in *Les Traitements de Choc d'Autrefois en Psychiatrie*. Thèse de Paris, 1939.

fully apart in a particular unit of the institution so as to avoid every possible cause of relapse, one must submit them to a kind of moral regime calculated to develop and strengthen the power of reason; but how much circumspection, how much enlightenment and wisdom is needed to guide men who possess penetrating insight and yet are so touchy and irascible! How can one submit them to a regular, constant and invariable order, unless one is able to acquire a natural ascendency over them by means of the rarest physical and moral qualities? I am all the more convinced of these fundamental principles since I have found them equally followed in one of the best known hospitals for the insane in Europe—Bethlem.

"It should be", says Haslam, "the great object of the superintendent to gain the confidence of the patient, and to awaken in him respect and obedience; but it will readily be seen, that such confidence, obedience, and respect, can only be procured by superiority of talents, discipline of temper, and dignity of manners. Imbecility, misconduct, and empty consequence, although enforced with the most tyrannical severity, may excite fear, but this will always be mingled with contempt. In speaking of management of insane persons, it is to be understood that the superintendent must first obtain an ascendancy over them. When this is once effected, he will be enabled, on future occasions, to direct and regulate their conduct, according as his better judgment may suggest. He should possess firmness, and, when occasion may require, should exercise his authority in a peremptory manner. He should never threaten but execute; and when the patient has misbehaved, should confine him immediately."

"And yet (continues Pinel) this same author is careful to ban all violence and corporal punishment, for as he says, 'If the patient be so far deprived of understanding, as to be insensible why he is punished, such correction, setting aside its cruelty, is manifestly absurd: and, if his state be such as to be conscious of the impropriety there are other methods more mild and effectual.' "

There was at least one type of case for which Pinel had little sympathy:

"There are certain rare examples of a peculiar turbulent and embittered character, who otherwise show no evidence of disturbed reason. Ought they to be included under the heading of 'mania without delirium'? At any rate the authorities have preferred to have them admitted to asylums rather than let them mix with delinquents in houses of correction. I had a striking example of this type at the Saltpêtrière; the patient was a former nun. If a nurse came to attend to her she heaped upon her the most vicious abuse; her more settled fellow-patients were treated just as inconsiderately, with constant noisy threats, angry outbursts and attempts to strike everyone around her. If she was served with food at meal-times she rejected it indignantly, or else she would hide it skilfully, so as to be able to complain later that she was being starved to death. She took pleasure in tearing her clothes to shreds and then crying that she was being deprived of all her needs and left naked. She never dared to defy the chief's authority when he was present, but behind his back she everlastingly indulged in sarcasm at his expense. Such a source of trouble and strife was clearly a danger to the other patients, and she was eventually secluded in a single room, to which the exasperation of this perverse and untameable character has since remained confined."

"But is it not a fact that one can only expect such a return of insight and gratitude from women of pure morals? How can one expect it of certain undisciplined and perverse women whose alienation results from shameful vice, loose living, drunkenness and vile intrigues? One dissipated young woman, for instance, did nothing but grumble during her stay at the Salpêtriére; she seemed to have sworn implacable hatred against all who prevented her from having her way. Every method of treatment tried for her proved useless, and so we had her charged with various delinquencies of a grave nature which she had committed before her admission, and taken away to the St. Denis remand prison; the same thing has happened on several occasions to other women who were brought to the Salpêtriére in consequence of loose living and drunkenness."

I next give you Pinel's own summing-up of his methods of treatment, as stated in his *Dictionary* article, 20 years after his first appointment to Bicêtre asylum:

"Only the violent or dangerous maniac should be condemned to inaction (i.e. kept under restraint); he should be given freedom to use his limbs as soon as he is merely extravagant in his behaviour; as soon as he passes into a state of convalescence he should be given an occupation in accordance with his tastes.

"In the first stage, if the patient is in a state of extreme agitation, he should be shut up in a dark room, so that he is kept away from the light or from any other stimulus likely to excite him. He should have abundant nourishment and plenty of soft drinks. If his ebullience diminishes, and if he is no longer dangerous to himself or others, he can be given freedom to run about or to take walks in some enclosed space, wearing an ordinary strait-waistcoat as his only restraint. After that, nothing but a kind of expectant treatment is needed, backed up by a bland diet adapted to his appetite, together with an exact supervision and a regular life.

"Later still all the resources of a moral regime are used: the patient is given proofs of benevolent affection; minor transgressions should be treated with indulgence, and awkward

> requests skilfully evaded; no violence should ever be used, or even any words likely to give offence; but an impressive and imperturbable firmness must be shown if the patient ventures to talk arrogantly or show disorderly conduct."

Perhaps the happiest passage in Pinel's book is the one giving unreserved praise to the methods used by his pupil Esquirol, under circumstances, it is true, far more favourable than he ever found at Bicêtre or the Salpêtrière.

> "I should like to mention again the private establishment of Dr. Esquirol, which is run on similar principles. It is in the course of informal visits or while taking walks with his patients that Esquirol carries out so skilfully the moral treatment of patients whose maniacal state is abating and who are in the convalescent stage. He offers to one consolation, to another encouragement; he will converse with a melancholic and seek to disperse his fantastic delusions; he studies the associations of their ideas; he seeks to unravel the emotional states which keep up the mental derangement; now he will contradict their erroneous prejudices; now he may seem to meet their exaggerated views halfway, or even to give in to their frivolous whims so as to obtain their goodwill and so pave the way to the wholesome advice he has to give. As soon as the patient shows unmistakeable signs of convalescence he is admitted to the physician's common table, then he is transferred to the convalescent wing. Here there is complete freedom; the authority of the subordinate staff ceases and the physician lives on easy terms with the patients; they meet together at lunch, at billiards or other games, and enjoy music together in the evenings."

JOHN HASLAM

We return to England and to Haslam—a very English figure in his robust common-sense, his humour and irony in controversy, his generosity and his latter-day conservatism. As we have seen, both Pinel and the Tukes were glad to seek support from his writings, and if his name does not stand beside theirs as a reformer, it is partly because in his position he lacked authority and opportunity, and partly perhaps because he was wanting in the "enthusiasm" which he condemns as a cause of religious insanity.

Of these who claimed to subdue the patient by a look or by "catching the eye", he says:

> "I have heard much of this fascinating power which the mad doctor is said to possess over the wayward lunatic; but from all I have observed amongst the eminent practitioners of the present day I am led to suspect that although this influence may have been formerly possessed and even to the extent attributed to the late reverend doctor (Willis) it must now be lamented among the 'artes deperditae.' "
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> "It has, on some occasions, occurred to me to meet with gentlemen who have imagined themselves eminently gifted with this awful imposition of the eye, but the result has never been satisfactory; for, although I have entertained the fullest confidence of any relation, which such gentlemen might afterwards communicate concerning the success of the experiment, I have never been able to persuade them to practise this rare talent tête à tête with a furious lunatic.
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> "However, Dr. Pinel may be satisfied of our superiority in this respect, it is but decorous to return the compliment, and if any influence were to be gained over maniacal patients by assumed importance, protracted staring, or a mimicry of fierceness, I verily believe that such pantomime would be much better performed in Paris than in London."

Pinel had referred to a supposed English claim to superiority in the management of the insane. Haslam disclaims this and at the same time deflates some of Pinel's excessive admiration of his superintendent or chief male nurse, Pussin:

> "It would be particularly gratifying to my feelings if I could develop this English secret for the moral management of the insane, which has been so ardently yet unsuccessfully sought after by Dr. Pinel. For fourteen years I have been daily in the habit of visiting a very considerable number of madmen, and of mixing indiscriminately among them, without ever having received a blow or personal insult. During this time I have always gone alone, and have never found the necessity for the assistance or protection of a keeper. The superintendent of Bicêtre, according to Dr. Pinel's account, is usually attended by his keepers (gens de service) though he is said to possess 'une fermeté inébranlable, un courage raisonné et soutenu par des qualités physiques les plus propres à imposer, une stature de corps bien proportionnée, des membres pleins de force et de vigueur, et dans les momens orageux le ton de voix le plus foudroyant, la contenance la plus fière et la plus intrépide'. Not being myself endowed with any of these rare qualities; carrying no thunder in my voice, nor lightening in my eye, it has

> been requisite for me to have recourse to other expedients. In the first place, it has been thought proper to devote some time and attention to discover the character of the patient, to ascertain wherein, and on what points, his insanity consists, to learn the history of his disorder from his relatives and friends, and to enquire particularly respecting any violence he may have attempted towards himself or others."

Haslam's general principles of moral management are set out in passages which I have already given you as they are quoted in Pinel's and Tuke's works. These are taken from his main work *Observations on Madness and Melancholy*. In reading Haslam we are of course conscious of the skeleton in the cupboard, and we cannot help having constantly in mind the revelations of the 1815 Committee of the House of Commons. Haslam's defence, however, has seemed to many entirely convincing and only two years after the Report he brought out a small book on *The Moral Management of the Insane*, giving details of day-to-day management not found in the larger work.

He defends his use of manacles as more lenient and less irritating than the strait waistcoat, which he rightly blames for producing dirty habits.

> "*Involuntary Passage of Faeces and Urine.*—In my opinion, the constant employment of the strait-waistcoat has very much contributed to the production of these dirty habits particularly in those cases where they are exclusively habits."

He has much to say on the subject of patients' occupation and amusement.

> "Whatever may be recommended as the mode of occupation, should consist of labour, or rational employment, and a varied union of both, will probably be found most advantageous; as it will depend on the particular state of the patient's mind, which ought to be preferred. For the peculiar kind of both, there can be no recipe; the sagacity and experience of the person who governs the patient, will adapt the proper exercise to the nature of the disease; and such capability and adaptation, presumes an intimate knowledge of the character, habits, and temper of the lunatic.
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> "Some skill, and much caution, are also required, to seize the proper time when the employment will become beneficial; as I have known many persons relapse, in consequence of having been prematurely, and injudiciously urged to active occupation. The secret of employment consists in discovering something which may rationally occupy the mind of the insane person. It must be rational employment, and not an occupation which would induce idle habits, or tend to confirm his delusion."

He is one of the first to plead for an improved status and improved conditions for the despised "keeper", as an essential condition for progress in moral treatment:

> "Notwithstanding the occasional instances of misconduct among the tribe called keepers, from intoxication, severity, or neglect, their conduct altogether entitles them to considerable approbation, especially when it is considered how much they are expected to perform, and under what disadvantages they are often obliged to execute their trust. There is scarcely a reflecting person who would engage in a service attended with considerable personal hazard, and where the emoluments are scanty, and little more than sufficient for the day which is passing over him; and for which employment he must be disqualified as he advances in years; a bootless drudgery, where knowledge and experience are profitless when bodily vigour has declined.
>
> "That the condition of these persons might be improved, and that such amelioration would be equally advantageous to those who are subjected to their management, there is no reason to doubt. . . .
>
> "But above all, the keeper should be instructed to preserve an entire command over his own temper, as the surest method of inducing the patient to comply with the established rules. It is much with insane persons as with children, their countenance and manner evince, and often through life, the effects of mild and liberal, or of severe and tyrannical, discipline."

Finally, I quote his observations on convalescence and probation:

> "It is my opinion that confinement is too indiscriminately recommended, and persisted in.
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> "In many instances an intercourse with the world has dispelled those hallucinations which a protracted confinement, in all probability, would have added to, and confirmed. In its passive state insanity has been often known, if the expression be allowable, to wear off by permitting the patient to enjoy his liberty, and to return to his usual occupation and industrious habits; indeed it might be naturally expected that bodily labour in the open air, with

moderate employment of mind, directed to some useful object, would more contribute to health and rationality than immuring a person, so circumstanced, within the walls of a madhouse, provided his derangement be of a mild and inoffensive character. The abrupt transition from strict confinement to perfect liberty is often injurious, and therefore it is advisable to let him pass through intermediate stages of probation to verify the completion of the cure. In this state he may enjoy the pure air of the country and benefit by its tranquillity in a family of regular and abstemious habits."

In his old age, Haslam joined in the controversy which sprung up from 1838 onwards over the total abolition of restraint. In 1843 he read a short paper to the "Society for Improving the Condition of the Insane". It is entitled "On Restraint and Coercion considered not only as Measures of Security, but as essentially contributing to the Cure of Insanity". His interest in and kindness towards his patients are still apparent, but he has learnt little in the last 25 years. He admits that restraint was deeply abused in the past, but he quotes with conviction the words of a recovered patient: "When I found myself unable to accomplish the mischief I had projected I began seriously to contemplate the motive that impelled me and the consequent restraint to which I was subjected; and this meditation gradually disconnected the motive or impulse from the action."

JOSEPH MASON COX

A contemporary of Haslam's was Joseph Mason Cox, who published his *Practical Observations on Insanity* in 1804. Cox is chiefly remembered for his use of the rotatory swing, which has generally been dismissed as a senseless cruelty; its memory, however, has been partly rehabilitated by Laignel-Lavastine who believed that it may have acted by inducing a vagotonic shock. Cox distinguishes clearly between this purely medical, and, as a by-product, the "moral" use of his swing:

"One of the most valuable properties is its proving a mechanical anodyne. After a very few circumvolutions, I have witnessed the soothing lulling effects, when the mind has become tranquillized, and the body quiescent; a degree of vertigo has often followed, and this has been succeeded by the most refreshing slumbers: an object the most desirable in every case of madness, and with the utmost difficulty procured. Maniacs in general are not sensible to the action of the common oscillatory swing, though it afford an excellent mode of secure confinement, and of harmless punishment."

"I have sometimes seen the patient almost deprived of his locomotive powers, by the protracted action of this remedy, who required the combined strength and address of several experienced attendants to place him in the swing, from whence he has been carried by a single one; the most profound sleep has followed, and this been succeeded by convalescence and perfect recovery, without the assistance of any other means."

Cox's moral treatment includes the employment of what he calls "pious frauds".

"Thus the employment of what may be termed pious frauds: as when one simple erroneous idea stamps the character of the disease, depriving the affected party of the common enjoyments of society, though capable of reasoning with propriety, perhaps with ingenuity, on every subject not connected with that of his hallucination, the correction of which has resisted our very best exertions, and where there is no obvious corporeal indisposition, it certainly is allowable to try the effect of certain deceptions, contrived to make strong impressions on the senses, by means of unexpected, unusual, striking, or apparently supernatural agents; such as after waking the party from sleep, either suddenly or by a gradual process, by imitated thunder or soft music, according to the peculiarity of the case, combating the erroneous deranged notion, either by some pointed sentence, or signs executed in phosphorus upon the wall of the bedchamber, or by some tale, assertion, or reasoning by one in the character of an angel, prophet, or devil. But the actor in this drama must possess much skill, and be very perfect in his part."

And even stranger means:

"Under circumstances calculated to assist this action, by producing unpleasant impressions through the medium of the other senses, as when screeches and yells are made in an apartment painted black and red, or glaring white, every man must be painfully affected;

the maniacal patient, however, torpid, must be roused; or, on the contrary where an opposite state obtains, extreme sensibility and impatience of powerful impression, much may be expected from placing the patient in an airy room, surrounded with flowers breathing odours, the walls and furniture coloured green, and the air agitated by undulations of the softest harmony. Much of this may appear fanciful and ridiculous, but the enquiring practitioner will find, on making the experiment, it deserves his serious attention."

But setting aside these extravagances one finds Cox's general principles to be moving in the right direction:

"The various means to be adopted in attempting the cure of insanity, for the sake of method, may be divided into moral and medical. Under the first may be ranked management which is of the highest importance in the treatment of maniacs in almost every case, is indispensable, and has succeeded where more active means have failed. The essence of management results from experience, address, and the natural endowments of the practitioner, and turns principally on making impressions on the senses. It is impossible to exhibit a set of invariable rules in this department of our curative attempts: the methods had recourse to, and the conduct of both medical and other attendants, must be regulated by the circumstances of the case. In some, recourse must be had to the most extreme measures, for the security of the party and the restraint of fury; in others, the most opposite methods are indicated. The generality of maniacs being artful, and their minds intensely fixed on the accomplishments of any wild purpose conjured up by the disease, physicians should be constantly on their guard: their grand object is to procure the confidence of the patient or excite fear. The first may be obtained by very varied means: thus I have seen the most furious maniacs by being liberated from their shackles by my direction, and under my own immediate inspection, so attached and devoted to me as never again to require coercion. Fear must be excited by firmness, and menaces by strong impressions on both mind and body, while confidence often results from soothing and gentleness; and I am decidedly of opinion from much observation and experience, that more is to be gained by these last than by their opposites. Maniacs of almost every description, are sensible to kindness and tenderness, and, in general, are to be managed and controlled with more facility by these than by harsher means, which ought never to be had recourse to but in cases of absolute necessity. Whatever methods are adopted in order to secure either fear or confidence, deception is seldom admissible; no promise should remain unfulfilled, no threat unexecuted."

Prichard and Burrows

English psychiatric literature between 1815 and 1840 has been given little attention in the standard histories. This is the period during which the historian's attention is mainly focussed on the work of the Parliamentary reformers, of successive Select Committees, and of the Metropolitan Commissioners in Lunacy. Moreover English psychiatry is overshadowed by the works of the great French masters—Esquirol, Calmeil, Georget, and the rest. It is well known that Pinel's reforms did not for many years extend beyond Paris, and, as we have seen, he himself countenanced repressive measures, which were continued by his followers and reached new heights in the practice of Leuret, to whom I shall return later.

The most considerable English authors of the period from 1815 to 1840 are George Burrows, whose *Commentaries on the Causes*, *Forms*, *Symptoms*, *etc. of Insanity* appeared in 1828, and James Cowles Prichard, who described mental disorders in his *Treatise on Diseases of the Nervous System* in 1822 and more fully in his *Treatise on Insanity* in 1835.

Prichard's very great knowledge of clinical psychiatry was largely based on observations made at St. Peter's Hospital, Bristol—a venerable building, but ill-adapted for the use to which it was put and lacking all facilities for treatment. It is not surprising therefore that he has little that is original to say about moral treatment. He quotes with approval Georget's observations on the use of strait-waistcoats and straps and the abandonment of chains, and notes that it has become the general conviction that lunatics should be treated with "a union of firmness and determination with gentleness of manner".

Burrows, who owned a private asylum at Clapham which he chose to name "The Retreat", is much more rewarding. Nothing could be more impressive than his account of the case of the schizophrenic girl—included under the heading of "Demency and Fatuity"—whom he treated for eighteen months with the greatest resourcefulness and patience and with eventual success.

He writes very topically of habit training:

> "Lunatics are but children of a larger growth. Their minds reason not, but they become the creatures of habit. Hence they may be led to do many things which neither reasoning nor persuasion can accomplish. We know that infants a few weeks old, if well managed, will, instinctively, have an evacuation upon being held in a certain position, and provided due regard be paid to a regular time. So I am persuaded will lunatics, generally, acquire a regular instinctive action of the bowels, whether they are perverse, indifferent, or fatuous, provided they be forced to go to the water-closet daily, at that stated time when nature in health makes the call. I have tried this plan with many where an opposition or disinclination has shown itself, and have thus imperceptibly conquered it. I say imperceptibly, because the practice must be adopted as a matter of course, and not as a request or favour; for if the object desired be known, it would put the patients on his guard, and he would most likely purposely restrain the impulse."

He writes equally judiciously on the general attitude of the physician, on occupation and on exercise. He puts up a reasonable defence of mechanical restraint, now being increasingly questioned by the reformers:

> "The rotary chair, the douche, a dark room, and personal confinement, are often used as means of repression. These, and other expedients, so far as mere restraint of violence or malignancy extends, are justifiable and imperative on many occasions. Deprivation of an accustomed indulgence, also, will often check the repetition of a wilful offence. But in employing repression, or constraint, or deprivation, we must always remember the constitution and condition of the patient and act accordingly.
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> "All these expedients are apt to be constructed by the patient into punishments; and if enforced when there is no actual necessity beget a dread and resistance to them when necessary as remedies, and thus counteract any benefits from them.
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> "Except when the safety of the patient or others demands the immediate interposition of restraint, it should not be hastily adopted; nor should any measure that can be interpreted as a punishment be imposed but by the direction of the physician or superintendent. Most lunatics most readily discriminate between the medical character and those in real authority, and the servant or keeper. The lunatic who respects the command of the former spurns indignantly constraint from the latter. Everything pertaining to medicine is ever in extremes. From excessive coercion and neglect of the insane, the opposite extreme is to be dreaded, and thus wholesome restraint be withheld when really required.
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> "The philanthropist alleges that too much coercion is generally used toward the insane. If coercion imply the practice which Celsus and Willis recommended, it ought not to be endured; but if it means no more than simple restraint, to prevent a patient from doing injury to himself or others, or to enable his attendants to control him, I maintain that such restraint is frequently called for, is generally highly useful, and, notwithstanding all that is alleged of lunatics being managed without, cannot altogether be dispensed with.
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> "I have been told frequently that no restraint is ever used, that is a strait waistcoat, etc. in the Quaker's Retreat at York. This is an error, which a perusal of Tuke's 'Description' etc. will refute. That excellent man himself showed me a patient under the strictest restraint I ever saw; but it was a case of most desperate propensity to suicide, and the confinement was not more than the safety of the patient, and the reputation of the asylum, required.
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> "To obviate the necessity of bodily restraint by the ordinary means, Dr. Auttenrieth constructed a strong room, padded all round, in which he conceived that the most furious lunatic might be let loose, like a beast in a den, without doing harm to himself or anyone. The absurdity and uselessness of such a plan must be apparent to the experienced, who know that some maniacs unrestrained, and so situated, would tear away all padding, and beat their brains out or soon become beasts in reality."

Paul Slade Knight

The writings of Paul Slade Knight and of Sir William Ellis deserve special attention, since they were the first to be written from experience in the new County Asylums. Knight was the first Medical Superintendent of Lancaster Asylum, opened in 1816. In 1827 he published his *Observations on Derangement of the Mind.* By that time he had resigned from the Asylum, and like Ellis later, found reason to complain of his treatment at the hands of the visiting justices.

Like Cox, Knight has been discredited for making use of the circular swing; his indications, however, were purely medicinal, though his observations differ from those of Cox, who was chiefly impressed with its anodyne effects.

> "As this machine must be considered more in relation to its physical than its moral action, I shall notice it in this place. It is a mean in the cure of insanity, possessing immense power. A patient subjected to its action is speedily affected with giddiness and sickness, and the peristaltic motion of the whole alimentary canal seems to be excited, and in some instances to such degree, that the patient vomits, and passes faeces in rapid succession and great abundance, along with his urine. I have found the circular swing extremely beneficial in obstinate constipation, and in dyspeptic complaints accompanied with much acid. Mary Sandiford, a very fine young woman, said to me on the 20th Sept. 1823—'Putting me in the circular swing did me more good than anything else; it threw all the sour stuff off my stomach.' "

On general management, and on the use of restraint he follows what is by now the general tendency:

> "It is the daily duty of the superintendent of a great number of lunatics, to soothe the irritable, repress the insolent, cheer the desponding, calm the excited, check the forward, encourage the timid, resist the importunate and petulant, but carefully to attend to reasonable requests; for he has daily causes to try; and he must, at one and the same time, be counsel, judge and jury."
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> "He who presumes to undertake the moral treatment of the insane, should be constantly actuated by a benevolent and forebearing spirit; occasionally enduring insolence, and the grossest insults, not only with patience, but even good temper, rather than inflict the slightest restraint on a patient, unconscious of the nature of his offence."

On restraint he says:

> "But I do not mean to assert that moral treatment alone is always, or even frequently, competent to produce this effect, or that there are no patients who require constant coercion, or nearly constant coercion, but it ought to be a law in the treatment of the insane, that all restraint is improper, which is not imposed, either to prevent the patient from injuring himself, or others: and then the moral treatment which preceded the coercion should be jealously inquired into. For I fear it will be sometimes found, even in the best regulated establishments, that the necessity for coercion has arisen out of some mismanagement in the prior moral treatment."

I must quote more fully from Knight's observations on occupation therapy. Lunatics, he says, "should not be permitted to idle away weeks, months, years, in the apartments or yards of their abodes. This is highly reprehensible and disgusting; and a disgrace to all concerned, whenever it is permitted."

The account of his induction of an advanced schizophrenic to occupation by the use of the wheelbarrow might have been taken from Simon or Van den Scheer:

> "The utmost advantage has been experienced from its use, among the patients under my care, not only of the poorer class, but of those who were more wealthy: I will select one remarkable case in illustration. The patient had been some years confined in a private asylum; and a Commission of Lunacy being held upon him, it was declared on the evidence of two physicians of great experience, that he was an idiot. To such an extreme state of apathy had the mind of this most wretched hypochondriac, for he was no idiot, been permitted to sink, I conclude by the injudicious treatment he had received, that his cure had long been considered to be quite out of the reach of art. For days, weeks, even for months, if permitted, this patient would stand in one particular part of his room, pulling in pieces one particular part of his dress, and tying it in knots; incessantly turning half round, and then back again, with a shuffling gait; snatching a piercing and hasty glance at the byestanders; and then shrinking as it were within himself, heaving deep sighs, accompanied by an under-growl of despair. I used various means to rouse him; and after he had been under my care a considerable time, I resolved to employ him at the wheelbarrow. He would not touch the handles, but, being placed between them, he resumed his singular motion of shuffling half round and then back again. He was urged, persuaded, tempted; all would not do: he was inflexible. We then made him grasp the handles of the barrow, and two assistants held his hands there, and thus at length we went to work. It was a tedious business, and seemed fruitless. We worked ourselves, and, explaining why we wished him to do so likewise, endeavoured to convince him the exercise was not disgraceful: all would not do; he would not touch the barrow longer than he was compelled. After one or two days spent in these endeavours, we at length tied his hands to the handles of the barrow with pocket handkerchiefs; and putting him in the midst of a line of five or six barrows, that were all wheeling on one path, he was constantly urged on by his fellow labourers, who were also lunatics. He demurred and flounced about considerably at first, but shortly, like a restive young colt newly in the breaker's hands, he set to work furiously and, instead

> of being a hindrance to the whole line of labourers, he urged them on smartly: this was to me a most gratifying triumph. The victory gained was followed closely up, and in a few days he was an excellent workman without compulsion, and in about a week from choice."

He gives a salutary warning against the classification of patients on a theoretical basis:

> "Much has been written on this subject, and theorists would have many classes—the epileptic—the noisy—the dirty—the quiet—the curable—the incurable—the very insane—the monomaniac, all in separate classes. This seems to be mere idle speculation, and would in practice produce the worst results. One epileptic patient shall be extremely dirty, noisy, and violent, and another shall be clean, quiet, obliging, and inoffensive. A curable patient shall be in every respect the most offensive and dangerous among a large number of lunatics; and an incurable equally inoffensive. Would it be wise, or humane, to put this violent curable patient with other curable patients who were not violent? or would it be humane to put the inoffensive incurable with the turbulent incurables? I apprehend it would not.
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> "The peaceable lunatic is often a very useful companion to the epileptic, and vice versa, many epileptics, at intervals of weeks and months, are very rational, and are excellent companions to the convalescents. Again, is the epileptic attacked by a fit, his companions and friends instantly assist him; but were all epileptics placed by themselves in any considerable numbers, they must daily, almost hourly, have before their eyes the convulsions of one unfortunate or another; and thus, though they might otherwise enjoy a state of sanity and cheerful amusements, the lucid intervals would be embittered by the unvaried and unceasing misery around them,—and that too rendered more poignant by the consciousness of their individual liability to the same sufferings."

Similar views were expressed later by Conolly. We may well take note of this at a time when we are again being urged to adopt artificial classifications devoid of any consideration for the individual patient, especially if he is labelled "chronic".

I think we can salute Knight as an essentially humane man; we know from contemporary descriptions of Lancaster Asylum that he worked under great difficulties, and certainly the reputation of Lancaster suffered after his departure until it was revived in the '40s by Gaskell and De Vitré.

Sir William Ellis

William Ellis is a more complex character. We first meet him in 1815 as the author of an open letter to the M.P. for his own town of Hull, urging that provision should be made for the insane poor in Yorkshire. Perhaps this was designed with a view to what actually resulted—the building of Wakefield Asylum and Ellis's own appointment as its first Resident Physician. Wakefield was founded by avowed admirers of The Retreat, and it was undoubtedly intended to apply Retreat principles here on a large scale. The reputation of Wakefield was certainly high; and in 1830 Ellis was given the control of the new Hanwell Asylum. His treatise was published eight years later, and gives a full account of the asylum and its management.

At Wakefield Ellis's system of occupations was outstandingly successful, and popular with his patients, drawn largely from the industrial districts of Yorkshire. He followed this up at Hanwell:

> "In the account of the mode in which the Asylum at Hanwell is managed, the various steps will be traced, by which the system of employing the patients has gradually increased, until, at the present time 454 out of 610 are regularly at work: and many of them at trades, with which they were totally unacquainted until they were taught them in the institution. When the system was commenced by myself and my wife, on the opening of the Asylum for the West Riding of Yorkshire, at Wakefield, so great was the prejudice against it, that it was seriously proposed, that no patient should be allowed to work in the grounds outside the walls without being chained to a keeper. Another suggestion was, that a corner of the garden should be allotted for their labour, and that they should dig it over and over again all the year round. The kind feeling and good sense of the people in the neighbourhood soon overcame these prejudices; and not only did they witness with pleasure the unfortunate patients happily engaged in their works in the grounds of the institution but they were delighted to

meet them emerging from its bounds, and, by a walk in the country, and a little intercourse with their fellow-men, preparing to enter again into society."

"A considerable difficulty was felt in finding suitable occupation for such patients; the ordinary sewing and mending, which were wanted for the institution were disliked, and there appeared no means of procuring for them work suited to their tastes. With a view to obviate the evils of idleness in this class, the matron hit upon the plan of establishing a bazaar. She borrowed of the treasurer twenty-three pounds eighteen shillings: this she laid out in the purchase of a few articles in the first instance as patterns, and in the buying the requisite materials. These were made up and worked by the patients, and sold by the workwoman to visitors at the bazaar, or are sent off to order. The scheme has answered beyond the most sanguine expectations."

"Once take away the inducement for them to employ themselves, and you must immensely increase by far the most expensive part of the establishment, the servants; and there would be no little addition to the expense in the injuries which would be done by the patients, by their applying, to mischievious purposes, that muscular or nervous energy, which is now profitably spent in useful labour. It would be tedious to detail the opposition which each new art has met with on its introduction: suffice is to say, that each, without any exception, has at its commencement been thwarted. It has only been by insisting, that whether the servants learnt or not, they should remain with the patients until they might have an opportunity of being taught, and by making a careful selection from amongst the patients to become the pupils, that these manufactures have been successfully established."

He sketches an ideal hospital for the more educated classes:

"For persons in the higher rank of society, a mansion should be provided, with park, woods, lawns, hot-houses, gardens and green-houses. It should be fitted, internally, with every convenience and luxury for the gratification of the taste. Science and the fine arts ought to be pressed into the service of stimulating the dormant faculties to healthy exercise. There should be, as there is now at Aversa, a music-room, which the patients of both sexes should daily have the privilege of using; and one evening in every week should be specially devoted to a dress-concert or oratorio, to which all, in a fit state to attend, should be invited. Such an association of patients, of the two sexes, would have a very happy influence on both. And an additional impetus should be given, by remunerating for their assistance any professional persons, either male or female, residing in the neighbourhood.

"In a similar manner, scientific amusements should be cultivated; one evening in each week should be devoted to them. Lectures on chemistry, with suitable apparatus for the performance of the minor experiments, would afford much entertainment; and this might easily be provided. There should be a modelling room, and a studio, where those who have a taste for the fine arts should have an opportunity of receiving weekly instruction. Botany ought to be sedulously cultivated; the open garden, the green-house, and the hot-house, would, according to taste, afford important means of cure, both moral and medical. The various domestic animals and birds, with others of rarer species, would contribute to interest and amuse. The library should be well furnished; but, of course, care and discrimination would be required in the selection of books, adapted to the particular habits, and to the states of mind of the patients."

Like Pinel, he pays chief tribute to the intuition, tact and resourcefulness of his chief mental nurse—but this time the praise is for his own wife, who held a joint appointment with him as matron and superintendent. Along with Katherine Jepson, of The Retreat, and the anonymous "governess" at Bicêtre, she may be claimed as one of the mothers of mental nursing:

"A patient, who was pruning some trees in the garden, quarrelled with another lunatic, during the accidental absence of the gardener: he became so irritated that he threatened to kill the other. A third patient ran into the house to give the alarm. He met my wife on the way, and she returned with him to the combatants, and desiring to speak with the man who had the knife, told him she was surprised to find a man, of his talents and understanding, so far forgetting himself as to dispute with the other, who, as he knew, had been insane for several years. This gratified his self-esteem. He said, 'You are right, ma'am; I shall take no further notice of him'; and he at once became quiet."

He has high hopes and ideals for the future of mental nursing, and shows the most advanced views on women's careers:

"The matron . . . ought to have under her training a noble band of young and highly-gifted females, willing from love of God and man to assist her in her anxious efforts.

"Strong prejudices, and very improper feelings, have long existed against females in any degree above the class of servants, being employed so as to obtain a livelihood for themselves, except as governesses. Any other occupation has been considered as degrading. But I hope a brighter day is dawning upon society, and that the application by females of the higher classes of their abilities to useful purposes, will soon cease to be a matter of surprise. There can be little doubt of the effect of such a change upon their own happiness."

He was the first to call attention to the need for After-care:

> "Many of the paupers, on their recovery, are entirely without resources; and they are driven of necessity into the workhouses, until they can obtain employment: this is more than they are able to bear. The benevolence of a gentleman of the name of Harrison, has done much to relieve cases of this kind, occurring in the West Riding of Yorkshire. Her Majesty Queen Adelaide is the patroness of a charity, which has for its object the supply of the immediate and most pressing necessities of the paupers, when discharged cured, from the asylum at Hanwell.
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> "But something further is still wanted. A comfortable place, where such of the patients as might be deemed proper objects, might, for a time, find food and shelter, and a home, until they could procure employment, would be an invaluable blessing to them; and if such an institution were established, even at the cost of the parishes, it would in the end prove a saving. Many patients might be tried in such an establishment, and eventually restored to society, who are now compelled to remain in the asylum as lunatics, in consequence of their retaining some erroneous view on some unimportant matter."

Nevertheless, Ellis found it necessary to advise repressive methods:

> "It sometimes however happens, that patients are met with who are so obstinate and incorrigibly perverse, that these means alone are not sufficient. The shock of the electrifying machine, which is often found beneficial in cases where the powers want rousing, is, in cases of determined obstinacy and bad conduct, equally useful. The terror of the machine will often overcome the vicious inclinations. The same effect is frequently produced by the shower bath, but still more so by the use of the circular swing. These, however, are remedies which should never be had recourse to until all other means have failed; and then, never without the most explicit orders from the medical superintendent, who ought to be present whenever the latter is applied.
>
> "Under these restrictions the most beneficial results often ensue; and patients soon learn to put themselves under that discipline which will exempt them from such uncomfortable consequences. By patient perseverance in kindness, with indulgence as a reward of good conduct, and great firmness in the application of the requisite means to overcome obstinacy and perverseness, many patients, who from faulty education had never been taught to exercise any control over their passions, have gradually become quiet and orderly, and have been eventually restored to reason."

Caleb Crowther, who as visiting physician to Wakefield found himself in natural opposition to the Medical Superintendent, under the curious dual system then followed, published a vicious attack on Ellis, accusing him of gross neglect of his duties. Crowther may well be discounted, since he shows an undiscriminating prejudice against mental specialists as such, and is vindictively paranoid. But we cannot ignore the testimony of John Conolly, who succeeding at Hanwell after a year's interval found mechanical restraint in extensive and unjustified use:

> "I never enter those wards, now assigned to a different class of patients, without recollecting the miserable struggles, the violence, and the wretched death-bed scenes, characteristic of a time when restraints were so familiarly employed, and so perseveringly kept on, as not even to be removed until life was extinct. Those who now visit the asylum, and who witness no such scenes, may be excused for imagining that I am needlessly apprehensive of the use of restraints being revived, and may talk, with apparent reasonableness, of the occasional and moderate employment of such methods. Experience has taught me that their shocking abuse, if once more witnessed, would subvert all such reasonings. Their abuse, to an extent which now can scarcely be described without a suspicion of exaggeration, and in an asylum distinguished from its first opening by the comforts and advantages it extended to the pauper lunatic, shows that their use, to any extent, cannot be permitted without danger.
>
> "It has recently been stated that Sir William Ellis, previous to his resignation of the office of the physician in 1838, had effected much diminution in the frequency of resort to restraints. Of this neither the reports nor the Case Books at Hanwell furnish, unfortunately, any particulars. Dr. Millingen succeeded Sir William Ellis; and in the single year in which he held the office, the number of instruments of restraint in the asylum appeared to have been increased; and he subsequently professed his dislike of the non-restraint system very strongly. The officers of the asylum who had been educated under Sir William Ellis were not among the supporters of the new system. They had not apparently partaken of his benevolent spirit; nor were they mindful of his precepts to be constantly and untiringly kind and watchful; and to persevere in affectionate attention, day by day, and for weeks together, not discouraged by apparent failure, and confident of eventual reward. His systematic employment of the

patients, commenced at Wakefield, and more extensively carried out at Hanwell; his consistent attempts to govern them by moral control; the pains taken, both by him and Lady Ellis, to diversify the life of the patients, and to procure them the solace of religious observances, should always be gratefully remembered. To do more than they effected, without the adoption of the non-restraint system, was, perhaps, impossible."

W. A. F. Browne

We are now on the threshold of the non-restraint movement. But before we consider this we ought to look at another source of reform, which was not, like non-restraint, tied to a single point of treatment, and therefore was not open to criticism as being cranky and never roused much opposition. This was the publication in 1837 of W. A. F. Browne's set of lectures, given while he was Resident Physician of the Montrose Royal Asylum, on *What Asylums were, are and ought to be*. It is a fighting book, written under the impulse of burning indignation, giving little credit to past or present, and presenting an almost impossible ideal of the asylum of the future:

> "In place of multiplying individual examples of excellence, let me conclude by describing the aspect of an asylum as it ought to be. Conceive a spacious building resembling the palace of a peer, airy, and elevated, and elegant, surrounded by extensive and swelling grounds and gardens. The interior is fitted up with galleries, and workshops, and music rooms. The sun and the air are allowed to enter at every window, the view of the shrubberies and fields and groups of labourers is unobstructed by shutters or bars; all is clean, quiet, and attractive. The inmates all seem to be actuated by the common impulse of enjoyment, all are busy, and delighted by being so. The house and all around appears a hive of industry. All are anxious to be engaged, toil incessantly, and in general without any other recompense than being kept from disagreeable thoughts and the pains of illness. They literally work in order to please themselves, and having once experienced the possibility of doing this, and of earning peace, self-applause, and the approbation of all around, sound sleep, and it may be some small remuneration, a difficulty is found in restraining their eagerness, and moderating their exertions. There is in this community no compulsion, no chains, no whips, no corporal chastisement, simply because these are proved to be less effectual means of carrying any point than persuasion, emulation, and the desire of obtaining gratification."

And this leads to a clear vision of group treatment in a therapeutic community:

> "It is not enough that the furious should be separated from the docile, or the imaginative from the fatuous; the mind of every individual should be carefully studied, its healthy as well as its insane bearings analysed, and the relations which these may have with, or the influence they may acquire upon the minds of others calculated, and groups formed in reference to the result. The violent or malicious may often be confided with perfect safety to the acquisitive, or vain, or religious monomaniac. The affectionate and happy may be associated with the desponding and despairing, and the helpless idiot may become the adopted child of some mother whose only delusion is weeping for infants which she never bore. A system somewhat similar to that here described is, I believe, pursued in the excellent asylum at Perth. But it may be carried farther; and whole families may be formed. A vain idler may be entrusted to the tutelage or example of three or four industrious knitters or oakum teasers; and being encircled by temptations to exertion, and stimulated by the desire of rivalry, abstraction from the dominant idea is often the consequence. A contented, self-satisfied, and active-minded maniac is joined to a timid, a lethargic, and a gloomy maniac, and seldom fails to communicate some portion of those qualities which it is our object to infuse."

The upshot was Browne's appointment as the first head of the newly-founded Crichton Royal, where in the course of a few years many of his plans were realized in happy surroundings. We may well speculate on the immediate influence Browne might have had if he had been appointed to one of the large English asylums, for instance to Wakefield, as happened not many years later to his son James Crichton Browne.*

A Foreign Observer: Crommelinck

For an original and unexpected view of English asylums at the height of the no-restraint controversy I produce my dark horse, Dr. C. Crommelinck, of

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* Browne's matron at Montrose was appointed matron of Hanwell in 1843.

Bruges, who in 1841 set out with the aid of a grant from the Belgian Government on a study tour of British, French, and German mental hospitals. His report, which runs to 272 closely printed pages is fortunately preserved in the Royal Medico-Psychological Association's library. Crommelinck is garrulous, discursive and unsystematic; he digresses to the extent of describing one asylum under the heading of another; he takes the wrong side in the controversy of the day, but his heart is in the right place and I find him altogether lovable.

He has an unbounded admiration for the English asylums, their attractive and impressive outward appearance, their internal comfort and cleanliness. The general principle followed, he says, is to ensure that the patient does not dislike the asylum; he is to be agreeably surprised at what he finds there and is to be made to feel that he is better off than at home. Bethlem he finds incomparably grand and elegant, but soon there is a critical sketch:

> "The resident surgeon, whose name is Thomas, acts also as apothecary, and corresponds exactly to what we in Belgium call an 'Intern pupil'. Two physicians, Drs. Monro and Morrison, are in charge of the patients' treatment: they each visit twice a week. A non-resident surgeon takes charge of the more important surgical cases. The 'admission week' begins on Friday, and every patient admitted within the week comes under one of the physicians and those admitted the following week belong to the other, and so on. Consequently there are in each ward patients under the care of one of the physicians and quite unknown to the other. I have seen Dr. Monro stand in the ward with a list in his hand and do a roll-call of his own patients, whom he was unable to tell from those belonging to his colleague. This is such an absurd and pernicious system that one can only hope it will soon be altered.
>
> "The resident surgeon, Dr. Thomas, has no authority, has always held a subordinate position and so has never been able to measure up to his duties, and as things are his presence seems to do more harm than good to the patients—I watched him fooling about and even sparring with them, the while Dr. Monro, still consulting his list, gravely called his patients before him; invariably he asked each of them, 'How are you?', invariably each replied 'Better', and that was the end of the medical interrogation."

This picture might have been drawn at any time during the following ten years. In 1852, to the general consternation, fresh scandals were exposed at Bethlem, which the Commission of Enquiry traced to the system of absentee physicians and confused and divided responsibilities. In the minutes of evidence the same characters, Monro, Morrison and Thomas appear very much as they are depicted in Crommelinck's little sketch.

He goes on to Wakefield, now under Dr. Corsellis, and commends the extensive occupation therapy; he admires the full recreational and educational programme which by that time W. A. F. Browne has brought into being at the Crichton. At Nottingham he attends the first meeting of what is now the Royal Medico-Psychological Association; and at Gloucester he meets its founder, Samuel Hitch, who tells him:

> "In one respect I pride myself on having gone far beyond all other asylum doctors, and that is the extent to which I trust my patients. Whenever possible I put them on their honour; I never refuse to take a patient's word as a pledge that he will keep a promise. Following this principle I can assure you that at least a fifth part of my patients are under no restriction whatever. On Sunday about the same proportion go to service in various churches in the town and the neighbourhood, most of them without any escort. Often I send several patients in company and they look after each other; you will understand that I only grant this privilege to those who I am sure will appreciate it, and this appreciation is enough to make them exercise a sufficient control over their actions."

At The Retreat he meets Thurnam and quotes from his report; he meditates on the passage I have already quoted, concerning the occasional use of fear and intimidation; he shows impatience at Thurnam's dictum that it is futile to attempt to reason with patients on the subject of their delusions; his mind is by now set on what he has seen in Paris, and he introduces us unexpectedly to a very differently conceived "moral treatment".

> "After Dumfries, the York Retreat takes the first place among British Institutions in which the physician takes some account of scientific methods in the treatment of mental

illness. However, what is done there falls far short of the standard set by Dr. Browne of Dumfries, and still further below that of the Paris doctors."

"Most English doctors just ask the patient how he is, and turn their backs on him if he begins to express his delusions; on the other hand, the French pull the patient up at once, and as soon as he begins to reason falsely, they say to him: 'What you are putting forward is false; it's not you speaking, but your wandering imagination; you believe you hear voices, but really you hear nothing; you are suffering from an attack of brain disorder, but you are going to get over it; I am your doctor, and you can take it from me; come along, do your duty, help me to get you well ', and so forth; this is what Falret and Ferrus and Voisin and Foville and Leuret and many other celebrated French physicians do, and they do well, and I have been surprised to see what a good effect this has on patients."

LEURET

But, apparently unknown to Crommelinck, one of the French physicians mentioned, Leuret, who occupied Pinel's old place at Bicêtre, had far more drastic ideas of what constituted a really effective moral treatment; for him his predecessors and contemporaries were timid and half-hearted. In 1840 he set out his methods in the only book actually entitled *Traitement Moral de la Folie.*

Leuret's system was to force his patients to abandon their delusions by the painful method of cold douches to the head. Thus:

> "He hesitates. *Douche.* After a few moments: 'Yes, doctor, everything I told you was just madness. I'll go to work tomorrow.'
> 'So you admit you were mad?'
> 'No.'
> 'You haven't been mad?'
> 'No, I haven't. I don't think so anyway.'
> *Douche.*
> 'Have you been mad?'
> 'Is it madness if you have imaginations and see and hear things?'
> 'Yes, it is.'
> 'Well then. I must have been mad. There weren't any men and women there—it was all madness.' "

Leuret defends his method with passionate eloquence:

> "Here, you say, is a patient who will pay no attention to your words—he is too deeply absorbed in his private revelations. Well, have you no other means than speech? If you cannot work on him through his ideas, cannot you do so through his sensations? There is another patient of a more irritable nature, who will bear you a grudge. Well, let him! Is it for your personal satisfaction that you look after the insane? Do you do it because you like being met with grateful or friendly smiles? If that is so, you had better leave mental medicine alone—you will get from it nothing but perpetual disappointment. But if you have in mind only your real aim, to cure the patient, then rouse his anger if anger can divert him from his delusions; give him if necessary real causes for complaint even against yourself; for a really well-felt and well-founded passion may be the best ally you can call to your aid."
>
> "Other physicians only use the douche as a means of punishment for some serious breach of the rules, or to force a patient to take food. I, on the other hand, do not wait for the disorder to reach this stage; I want to arrest its progress, and so I do not hesitate to provide an occasion for finding fault with the patient, so as to have a reason for giving the douche and so teach him what he must do to escape it. And when I have wrested some admission from him, I am not satisfied; every day I must have fresh concessions; the more the patient gives in, the more I demand from him, and if I can see recovery ahead I stop only when recovery has been achieved."

With all this, Leuret combines a first class educational and rehabilitation programme: self-governing methods in the refectory, a school for the illiterate, reading, acting, instrumental and choral music. The threat of the cold douche was even used to induce a patient to take up his discarded violin and play to the others. In spite of these heroic methods Leuret's devotion to his patients was undoubted; that he was a real friend and champion of the insane is shown in his medico-legal writings. His "moral treatment" of course died with him; I have mentioned it here as a particularly well-documented example of apparent cruelty not springing from ignorance or indifference, but deliberately planned by an otherwise humane and skilled physician.

CROMMELINCK AND "NON-RESTRAINT"

We return to England in order to accompany Crommelinck to Lincoln and to Hanwell, where he finds himself in the midst of the great non-restraint battle. The position in 1841 at Lincoln Asylum (now The Lawn) was that mechanical restraint, after being here considerably reduced by Charlesworth, had been abolished four years previously by Gardiner Hill; Hill was now no longer on the staff, but still practised in Lincoln and had a good deal of influence, while his system was being maintained by Charlesworth. At Hanwell, where there were ten times as many patients as at Lincoln, restraint had been done away with by Conolly at the end of 1838, and the hospital's Annual Report described the new system as fully successful. Crommelinck is entirely opposed to the total abolition of restraint prescribed by Gardiner Hill and Conolly:

> "Dr. Conolly is the slave of a theory; he has got hold of the idea, Heaven knows where from, that one can manage raving lunatics without using any means of coercion. His system was embellished with the title of 'Non-restraint', and straightway all methods of coercion were denounced and held up to public execration as being cowardly, cruel, inhuman or barbarous; the most high-sounding epithets were loudly uttered by this disinterested philanthropist; he vainly hoped to attract the attention of all Europe; he did at least manage to enlist the sympathy of a certain party who, burning with zeal for the cause, rushed into action, in defiance of common sense and truth, against all and sundry to further this project of banning what he called cruelty and inhumanity. Under the names of 'Looker-on,' 'Snap' and others, this personage showered upon the public a number of malicious and insulting pamphlets directed against the supporters of restraint, and before long he had brought into his camp a few suggestible spirits. He then got himself appointed a member of the Hanwell Committee, and as such he was able to combine with Dr. Conolly and carry out the most extravagant projects."
>
> ". . . The doctrine of 'non-restraint' is just the kind of thing that will appeal to lovers of the ideal and wonderful; it impresses the ignorant public and sounds attractive to inexperienced doctors; it is necessary to prevent this evil from spreading by enlightening the public about its unescapable dangers."

It must be admitted that "Looker-on" who was Mr. Serjeant Adams, Chairman of the Middlesex justices, could be extremely provocative, as one can see by turning up his letters to the *Lancet* in the years round 1840. For instance, on hearing that at Nottingham Asylum mechanical restraint had been virtually abolished in the treatment of ordinary cases of insanity, he writes:

> "And above all others, read this sentence, oh ye Metropolitan Commissioners in lunacy, read ye this sentence, rouse yourselves from your death-like slumbers, and awake to the consciousness of your imbecility, supineness and neglect!"

Crommelinck lends a ready ear to the opposition.

> "I will proceed to prove . . . that methods of coercion are frequently curative; that the substitutes now in use are more cruel than coercion itself; that dreadful abuses have resulted from this new system, such as patients being allowed to starve to death, or to bite their own flesh, hang themselves or kill each other."

He quotes from a pamphlet published by the Rev. Francis Tebbutt, who was dismissed from his post as Chaplain to Hanwell.

> "Waters was a dangerous patient of great strength. He was kept secluded in a room, nearly in darkness, for about three months. When Mr. Tebbutt reported this to the Committee Dr. Conolly put forward the excuse that he had never known of it, as he had been confined to bed during the whole of the time by an attack of rheumatism. Mr. Tebbutt asserts that this is untrue, and that on the contrary Dr. Conolly had been in the wards every day. Mr. Serjeant Adams supported Dr. Conolly, and the blame was put on the two assistant medical officers who were said to be purposely trying to bring the system into discredit.
>
> "Jonas Plummer was assaulted by another patient, and death resulted. Dr. Conolly reported that he had died of old age. Mr. Tebbutt refused to bury him; an inquest was held,

> and it was found that Plummer died as a result of injuries inflicted on him by the other patient, John Evans.
>
> "Joseph Smith was a violent patient; he was secluded in a padded room, where for seven or eight days he beat his head against the walls. On Dr. Conolly's orders he was given frequent doses of hyoscyamus as a sedative. He slept continuously for two nights and a day and was found dead. Dr. Conolly certified him as having died of apoplexy."

Again it must be admitted that none of these accusations are refuted, or even mentioned, in the published reports of the Visiting Justices, or in Conolly's own books. He complains, however, of lack of cooperation, as in one of his later articles in the *Journal of Mental Science* when he says: "Slovenly and unfaithful officers and attendants neglected these contrivances (that is, the methods to be used in substitution for restraint), allowed accidents to happen and recorded them."

Crommelinck, however, pays Conolly this tribute:

> "Outside this question of restraint, which seems to have become a monomania with him, Dr. Conolly is the most pleasant and obliging colleague I have ever met. I am only being severe towards his absurd system because I undertook to report the whole truth, without either sparing my friends or my own interests."
>
> "Dr. Conolly says that the physician must get to know everything that concerns directly or indirectly each patient and must seek to gain the confidence of each one of them; but who would admit that one physician can suffice for a thousand patients and I should add that Dr. Conolly is confined to bed for six months or more each year by a most intractable rheumatism."

His report on Lincoln is on similar lines. It will be noticed that he wrongly believes that Lincoln followed Hanwell in adopting the new system:

> "This is a poor building; it has an attractive frontage resembling Bethlem and overlooking a spacious lawn; but that is all there is about it that is either good or pleasant; the interior can hardly be compared with that of other English institutions; the courts are small and there is not an inch of land for the patients to cultivate."
>
> ". . . The visiting justices there are true confederates and imitators of Hanwell, and it is they who issue the Annual Report—they resort to the same stratagems, which have been exposed by one of their consulting physicians, Dr. Cookson. They have tried to get rid of this inconvenient witness, but Dr. Cookson bears patiently with one insult after another, in the hope that one day the eyes of the public will be opened. . . . Another doctor named Charleswood (*sic*) has mesmerized these justices, just as Serjeant Adams has mesmerized those at Hanwell; he is even more violently partisan than the latter and a few months ago he actually sent a challenge to Dr. Corsellis of Wakefield.
>
> "Dr. Cookson's pamphlet is full of confessions made by attendants who resigned because they could not put up with the abuses committed by the supporters of 'non-restraint'; or who were dismissed because they attempted to practise restraint secretly when they found that the new system had not only failed but become dangerous."

But after all Crommelinck had the interests of the insane at heart, and one cannot quarrel with his final conclusion:

> ". . . But we must be fair—let us admit then, that the supporters of 'non-restraint' have through the very violence and exaggeration of their campaign, greatly reduced the amount of restraint used, even in cases where previously no one would have thought of doing without it. Had they kept within reasonable limits and not insisted on being so exclusive and dogmatic none would have deserved better of humanity or contributed more to the science of mental treatment."

JOHN CONOLLY

Conolly's own works do show evidence of the intolerance and dogmatism, and so for many years his attitude caused resentment among those who claimed to use restraint on rare occasions only and to be otherwise as enlightened and considerate as he was.

> "As the restraint system comprehended every possible evil of bad treatment, every fault of commission and omission, so the watchful, preventive, almost parental superintendence included in the term non-restraint creates guards against them all. For such is its real character, if properly understood and practised."

Sceptics who retained misgivings about total abolition were constantly reminded that Hanwell possessed "appliances" or "contrivances" which were true substitutes for restraint. Hack Tuke, writing in 1845, lists them as seclusion rooms, especially padded ones, special dress, locks, etc. for violent patients, manual restraint, night observation, special construction of the asylum and classification of the patients. Conolly himself says:

> "Where there are no padded rooms to resort to, I fear some parts of this ancient treatment must be scarcely avoidable; for many patients, particularly in the early stage of their malady, cannot safely be at large in the wards except in close restraints, nor safely placed in an ordinary sleeping-room, unless they are fastened to the bedstead. This state may continue for many days, or sometimes for many weeks; and for meeting such exingencies, the padded room, and much watching, and all practicable attentions alone seem adapted."

It should be pointed out also that Conolly did not count as restraint certain appliances which were later officially classified as such.

In the *Journal of Mental Science* for 1854 (then the *Asylum Journal*), to which Conolly contributed regular reviews of the Commissioner's Report, he says: "As regards keeping dressings on the head or elsewhere, the secured covers and cases of ticken with small locks are generally efficacious; but if they do not prove to, the confinement of the hands comes within the surgical category, and is of course allowable."

He must have been greatly helped by the effect of contrast, for the majority of his patients came to him from homes of the utmost poverty, or from workhouses where they had been confined for long periods before the parish would decide to send them to the asylum; and others were transferred to Hanwell from Bethlem when after a year's treatment they had been pronounced incurable —a system incidentally which Crommelinck roundly condemns, but which is not unfamiliar to us to-day.

> "Too many unfortunate creatures are merely sent to county asylums to die; their emaciation, and ulcerations, and marks of restraints, are memorials of much past misery, and the kindest subsequent care is often extended to them in vain. They not unfrequently leave the workhouse or asylum from which they come at such an hour as to lose their chance of dinner altogether; they are sometimes brought in open carts, in cold and wet weather, and their removal made unnecessarily miserable; the attendants should never permit them to remain long hungry and cold and uncared for, after their arrival. When no proper care is omitted, it is often gratifying, after the patient has been an hour in the asylum, to see a poor, ragged, dirty, half-starved, sullen, wretched creature transformed into a clean, decently-dressed, cheerful and hopeful person, disposed to be pleased with everybody and everything: and this is a first step towards a cure."

> "The wretched clothes are removed; the patient is taken gently to the bath-room, and has, probably for the first time, the comfort of a warm bath; which often occasions expressions of remarkable satisfaction. The refreshed patient is taken out of the bath, carefully dried, and has clean and comfortable clothing put on: he is then led to the day-room, and offered good and well prepared food. The very plates, and knife and fork, and all the simple furniture of the table, are cleaner by far than what he has lately been accustomed to, or perhaps such as in his miserable struggling life he never knew before. A patient seen after this preliminary part of treatment is scarcely to be recognized as the same patient who was admitted only an hour before. The non-restraint treatment has commenced; and some of its effects already appear."

There is evidently much more in this than the removal of restraint; and in fact Conolly conceived of his system as something far wider. As he says:

> "The great principle of the system is to exclude all hurtful excitement from a brain already disposed to excitement. On this principle it abolishes mechanical restraint; and also, on this same principle it regulates every word, look and action of all who come in contact with the insane. The operation of the principle must be universal to be complete."

It would be too much to expect that such principles could have been fully established within the short time that Conolly held authority at Hanwell—an uneasy authority it seems, in face of many frustrations in addition to the opposition I have already mentioned. Fortunately his two classical works: *The Construction and Government of Lunatic Asylums*, published in 1847, and the later *Treatment of the Insane without Mechanical Restraint*, are full of detailed practical instruction; fortunately also they are still read and I do not need to quote further from them.

But I cannot omit a reference to the urgently topical subject of the nursing staff—their function and quality and status, which our authors, from Haslam onwards had stressed as the essential foundation for any advance in treatment. On this Conolly says:

> "The physician who justly understands the non-restraint system well knows that the attendants are his most essential instruments; that all his plans, all his care, all his personal labour, must be counteracted, if he has not attendants who will observe his rules, when he is not in the wards, as conscientiously as when he is present. No one can select them for him, for no one can fully understand all the qualities which his views require them to possess. Unless, therefore, he has this privilege of choosing his officers and exercising a vigilant supervision over them, as directed by himself, whatever good may be done in any asylum, the governors must not flatter themselves that they are fully carrying out the non-restraint system."

And he sums the matter up thus:

> "The whole life of the patients must take its character from the attendants and be agitated or tranquil, passed in misery or in content, according to the qualifications possessed by those in whose sole and immediate charge they must be for the greater part of each day. Every comfort, every appliance or treatment, every curative means, will be either realized or withheld according to their character. They are the instruments by which every great and good intention is brought into hourly practice. It is not necessary to say more to prove how important it is that they should be well chosen, well governed, well taken care of, well supported in their duty, and well paid."

1854

Our review of a hundred years of moral treatment takes us to the year 1854, which I have chosen not only because we have now advanced a further century, but because that year saw the publication of the first volume of the *Asylum Journal*, now the *Journal of Mental Science*, and the further progress of British psychiatry can easily be followed in its pages.

It is fitting that my last quotation should be from this first volume. I choose an article by a good friend of British psychiatry, Van Leeuwen, of Meerenberg (now Santpoort) Hospital in Holland, who sums up the unity of medical and moral treatment in terms which could hardly be bettered to-day:

> "In the medico-moral treatment we do not look out for any particular organ as the seat of insanity, nor do we pretend to operate directly on the mind or soul; but we study the patient as a unity, as an individuum, in all his physical, intellectual, moral and social relationships, such as he is born from his parents, such as he has been modified or transformed for better or worse by subsequent circumstances—in short by the wisdom or want of wisdom by which he has made his way through life. . . . We proceed by that experience which is acquired by looking upon insanity as principally a disease of man as a moral being."

Summary

1. A plea is made for a reassessment of psychiatric tendencies and teachings in the late 18th and early 19th centuries.
2. English authors have been unjustifiably neglected as sources of information on the history of the period.
3. A study of these authors' teachings on the "management" or "moral treatment" of the insane shows that progressive views were more widespread than is generally recognized.
4. Attention is specially drawn to the influence of Haslam's writings on the practice of Pinel and of The Retreat; to the pioneer work of Thomas Arnold; and to Burrows' and Knight's individual work with schizophrenics.
5. The reforms introduced by Pinel and at The Retreat are re-examined, and some current misconceptions of their nature and scope are pointed out.
6. The later work of Ellis, Browne and Conolly is briefly discussed.
7. An original view is presented of English psychiatry at the height of the "no-restraint" controversy as seen through the eyes of a foreign visitor, Crommelinck of Bruges.

DEPERSONALIZATION

I. AETIOLOGY AND PHENOMENOLOGY

By

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I. Introduction

Depersonalization remains a subject whose fascination for psychiatric investigators shows no sign of waning. That this is so may partly be due to the striking nature of the symptomatology, though for many the philosophical problems it poses cannot fail to exercise much thought (Lewis, 1949). Numerous aetiologies have been advanced, but there exists no common agreement, even amongst those of similar psychiatric discipline, as to the origin of the condition.

It is the purpose of this paper to examine some of the reasons why depersonalization remains such a problem. An attempt will be made to demonstrate how the disagreements on aetiology have partly arisen on a semantic basis, due to the phenomena accepted as those of depersonalization being such that no clear-cut boundaries can exist for the condition. In a second paper the basis on which depersonalization type of phenomena may arise will be discussed, and the value of considering depersonalization as a generic term for a number of syndromes, often related only by a loose similarity of complaint, will be examined.

II. Aetiology

The various theories which have been advanced to account for the aetiology of depersonalization may conveniently be grouped as follows:

1. Theories which regard depersonalization as originating from the disturbance of a particular psychological function.
2. Theories which regard depersonalization as originating from a cortical dysfunction, which itself is specific, but which may be set in motion by a number of different factors.
3. Theories of psychoanalytic origin, relating depersonalization to various disturbances occurring at different stages of the early developmental period and psychic organization of the individual.
4. Theories which regard depersonalization as a form of schizophrenia.

The above four groups of theories have thus attempted to relate depersonalization respectively to a single disturbance of psychological function; a single common pathway through which the disorder manifests itself; a single disturbance of the developmental period; or a single disease process. Some of these theories will now be considered in more detail.

Theories which regard depersonalization as originating from the disturbance of a particular psychological function

Amongst the earliest theories of depersonalization were those of Krischaber (1872), Ribot (1882), and Taine (1870) who considered the disturbance to be one of sense perception. This approach was later pursued by Pick (1904). Oesterrich (1910) and Loewy (1908) both regarded the emotional disturbance as primary, the former emphasizing the loss of feeling and the latter postulating loss of specific feelings accompanying action. Janet (1903) regarded the hyperactivity of the memory, contrasting the present state with the recollection of the healthy state, as the important factor, while Heymans (1911), taking a somewhat similar view, incriminated the loss of feeling of familiarity. Schilder frequently stressed the importance of increased self-observation.

Most theories of the above type are based on the now unacceptable assumption that the mind is composed of a collection of different functions, any of which may separately become disturbed. Furthermore, such concepts are merely *ad hoc* theories derived from the over-emphasis of a particular feature or symptom isolated from the whole structure. In view of the fact that the particular features from which the concepts were derived are certainly not present in every case diagnosed as suffering from depersonalization, their absence must either have been overlooked by the authors, or insufficient cases examined to allow the development of more caution in the universality of their approach. Störring (1932) attempted to overcome this difficulty by postulating a disturbance of a number of different psychological functions in various combinations, but this does little to remove the objections on general grounds raised above.

Theories which regard Depersonalization as being the result of a cerebral dysfunction, which itself is specific, but which may be set in motion by a number of different causes

Schilder (1935), L'Hermitte (1939) and others have attempted to relate depersonalization symptoms to a disturbance of the "body scheme". The central representation of the latter is now known to be localized in the region of the inferior parietal, angular and marginal gyri of the brain. Tumours in these regions of the brain can cause body-image disturbance, often expressed by the patient in depersonalization terms. However, in the majority of patients suffering from depersonalization symptoms there is no evidence of structural change in these areas. Nevertheless both Schilder (1935) and Bychowski (1943) have pointed out that the integration of the body image proceeds on a psychobiological basis and its disturbance may thus be the result of organic brain disorder, psychodynamic disturbance or a combination of the two. On the other hand we have the fact that the complaints of patients commonly labelled as suffering from depersonalization often do not relate to their body at all. When further questioned such patients may deny any alteration in their experience of their body. To attempt to explain all feelings of change of the self and the outside world by deriving them from a disturbance of the "body scheme" would seem not only to be a doubtful hypothesis, but one which, if accepted, would stretch the concept of the "body scheme" to such extremes as to render it valueless.

Others have regarded the symptoms of depersonalization as resulting from a less localized cerebral dysfunction. Mayer-Gross (1935) considered the condition to result from a "preformed functional response of the brain", which he regarded as being in the same category as other non-specific preformed mechanisms such as the epileptic fit, delirium, states of semi-consciousness, catatonic states, etc. While allowing a non-specific origin, Mayer-Gross insisted on the specificity of the phenomena, being led to this conclusion by his impression that the varied utterances of depersonalized patients describe essentially the same experience and by the fact that depersonalization often occurs in normal people in states of marked fatigue. However, as will be discussed in more detail below, the "essential similarity" of the experiences of patients complaining of depersonalization symptoms is often more apparent than real, and is partly grounded in the basic limitations of our language.

Disturbances in the region of the temporal lobe of the brain are well known to produce feelings of unreality and this has been commented upon by a number of authors, particularly by Penfield and Jasper (1947). Those cases reported have commonly been the result of tumour, epilepsy or direct stimulation of the cortex. The unreality feelings in such cases may be of brief duration or appear as the aura of a more generalized seizure with loss of consciousness. If more prolonged there is usually some associated alteration of consciousness, such as mild clouding and confusion, or a dream-like state. To invoke the temporal lobe as the seat of disturbance in all cases complaining of depersonalization symptoms one would have to postulate a functional disorder which left consciousness intact. However, there is no doubt that, if any one area of the brain is to be held more responsible than another, the organization of the temporal lobe is such that it has the highest claim to consideration. The implication of this will be examined in more detail later.

Theories of Analytical origin relating Depersonalization to various disturbances occurring at different stages of the early developmental period and psychic organization of the individual

One of the earliest analytic writers on the subject was Nunberg (1924) who considered that depersonalization originated from the threat of physical punishment resulting in narcissistic wound and withdrawal of libido from the object. Federn (1928) agreed with Nunberg that a shock causing loss of object-libido was the essential factor and was convinced of a specific aetiology for the condition, saying:

> "All feelings of alienation have something so specific in common that we must assume for all of them one and the same specific cause, whichever psychical function the alienation may attack. Now since we have ascertained that the cause of the external perceptions lies in the loss of a normal narcissistic cathexis, we are bound to assume a loss of narcissistic cathexis in every case where alienation occurs and therefore even in the alienation of feeling, thinking, remembering, etc."

Other analytic writers appear to have been equally convinced of the specificity of cause but manifest a remarkable lack of agreement on the subject. Sadger (1928) thought that depersonalization was an attempt to escape psychic castration, and Searl (1932) considered that there was an attempt to achieve this end by possessing the immunity of inanimate objects. Schilder (1942) considered that the child's dissatisfaction with the amount of admiration and erotic interest spent upon him resulted in a concentration of the libido in the scrutinizing tendency which became turned in. Withdrawal of libido from the body image resulting from disruptive sado-masochistic tendencies was also considered by Schilder to be an important factor. Oberndorf (1934, 1935, 1939) stressed erotization of thinking and identification of such thinking with the parent of the opposite sex, with resulting clash of homosexual and heterosexual striving. Wittels (1940) found in his cases identification with a large number of phantom images which resulted in insufficient ego-libido being invested in any one of the phantoms. The ego was left in a perplexed state due to super-ego condemnation of the phantoms, this latter springing from a disturbed father-child relationship. Freud (1937), Fenichel (1928) and Sadger (1928) agree that in depersonalization there is a defence against affects and sensations.

More recent analytic authors, some of whom will be mentioned in the next section, have been impressed particularly with disturbances of ego development as being the prime factor in the aetiology of depersonalization.

The foregoing represent only the more important analytical views on the subject and a more detailed examination of the literature would illustrate further divergent views. Clinical findings have included sado-masochism, erotization of thought, voyeurism and exhibitionism, ambivalence, strong fears of castration and annihilation. Some authors note paranoid tendencies kept in check by depersonalization, and others stress the importance of anal tendencies, especially anal exhibitionism and voyeurism. Unconscious trends towards self-castration, oedipal fixations and homosexuality have been reported. Oral sadism has been stressed by some, while others have found this rare.

Attempts by some analytic writers to differentiate between "genuine depersonalization" or "depersonalization neurosis" and symptomatic depersonalization have not resulted in an appreciable uniformity of opinion as to the aetiology of the former, and consequently the justification of its status as a clinical entity is still lacking.

The theories of analytical origin are largely constructions based, in most cases, on the analysis of a few patients, and, as has been demonstrated above, a disturbance of almost every stage of psychic development has been incriminated as the essential cause by one author or another. If all the theories are valid, then depersonalization should be one of the features of every neurosis. Perhaps it was this realization that led Schilder to write:

> "Almost every neurosis has in some phase of its development symptoms of depersonalization."

The above statement, however, should be accepted as an allegation rather than a demonstrated fact.

Recently, Oberndorf (1950), one of the leading analytic writers on depersonalization, having changed his ground by deciding that depersonalization is a defence against anxiety arising from threats to the ego from the id or super-ego, writes:

> "Why and how depersonalization and unreality occur in such apparently widely different conditions as depression, schizophrenia, obsessional neurosis and as an almost separate entity still remains unexplained . . . Depersonalization still remains a challenging problem in the field of psychic phenomena and the earlier literature, to which every new writer on the subject dutifully refers, is inconclusive and contradictory."

It must therefore be accepted that a psychopathology specific for all cases of depersonalization has yet to be demonstrated.

Theories which regard Depersonalization as a form of Schizophrenia

Depersonalization has been considered to be rooted in schizophrenic disorder, and Nolan Lewis (1949) is still apparently inclined to regard most depersonalization symptoms as being the prodromata of a schizophrenic illness. He writes:

> "All such expressions such as 'my head feels hollow, my brain seems to move towards my nose'; 'I seem to make three or four hidden meanings out of things instead of the obvious'; 'I have been in a state of mind—everybody is in a state of mind, but my mind seems too big for my body'; 'thoughts come almost like physical sensations—they pass up and down in my head' are schizophrenic in nature and pattern and are only a step away from mind reading ideas, more bizarre expressions and hallucinations."

Although many patients making complaints similar to the above will develop a schizophrenic illness, it is a fact that many patients can for years make such complaints without any evidence of the development of a schizophrenic disorder. If the schizophrenic nature of such symptoms is insisted upon, then the benign cases must be regarded as "formes frustes". This latter solution, in the absence of definite evidence, is never a very satisfactory one.

More recently, some analysts have attempted to link depersonalization to the same disorder of ego development which they postulate as a basis for the development of schizophrenia. Klein (1946) considers that states of depersonalization and of schizophrenic dissociation are a regression to infantile states of ego-disintegration at, what she calls, the paranoid and schizoid positions. Rosenfeld (1947) considers that there is only a quantitative difference between depersonalization and schizophrenia and that both result from the defensive splitting off from the ego of destructive impulses felt to be alien. Galston (1947) regards depersonalization as a benign form of schizophrenia. Winnik (1948) who views "depersonalization neurosis" as resulting from a uniform disturbance of the ego and its functions, has the impression that the condition is a disturbance "arrested somehow in the way to schizophrenia".

Those analysts who regard depersonalization as related in its development to schizophrenia do not fully agree as to the type of disturbance responsible. Furthermore, until more is known about schizophrenia and whether it itself is an entity, the relationship between it and depersonalization must remain speculative.

III. PROBLEMS OF DEFINITION

The foregoing study of the various aetiological approaches to the problem of depersonalization has revealed marked disagreement, not only between those of different psychiatric discipline, but often between those who have studied the subject from a common approach.

One possible reason for this confusion appears to be the fact that, although the territory occupied by depersonalization has repeatedly been described, its boundaries have never been successfully defined. It may be, therefore, that the contenders, without realizing it, have been fighting their battles over different ground. A consideration of the "definitions" which have been advanced by a few of the leading investigators of the subject will illustrate this point.

Attempts by Previous Authors

One of the most frequently quoted authors on the subject is Paul Schilder, and, as his descriptions of the condition have been amongst the most comprehensive, they will be quoted in some detail.

In 1914 Schilder wrote that depersonalization was

> "a state in which the individual feels himself changed throughout in comparison with his former state. This change extends to both the self and the outer world and leads to the individual not acknowledging himself as a personality. His actions seem to him automatic. He observes his own actions like a spectator. The outer world seems strange to him and has lost its character of reality."

Later, Schilder (1928) gave a more detailed account:

> "To the depersonalized individual the world appears strange, peculiar, foreign, dream-like. Objects appear at times strangely diminished in size, at times flat. Sounds appear to come from a distance. The tactile characteristics of objects likewise seem strangely altered. But the patients complain not only of the changes in their perceptivity, but their imagery appears to be altered. The patients characterize their imagery as pale, colourless and some complain that they have altogether lost the power of imagination. The emotions likewise undergo marked alterations. The patients complain that they are capable of experiencing neither pain nor pleasure, love and hate have perished with them. They experience a fundamental change in their personality, and the climax is reached with their complaints that they have become strangers to themselves. It is as though they were dead, lifeless, mere automatons. The objective examinations of such patients reveals not only an intact sensory apparatus, but also an intact

> emotional apparatus. All these patients exhibit natural affective reactions in their facial expressions, attitude, etc., so that it is impossible to assume that they are incapable of emotional response . . . In states of depersonalization it is not only the body which appears to be alienated, but also life as a whole, thoughts, impressions, feelings. The depersonalized patient characteristically speaks of the impression that his own thinking is not carried on by himself. The alienated subjective life appears to have been robbed of its personal character and removed into the outside world. The outer world from which the individual has turned away and withdrawn his libido is only capable of alteration in the direction of the unreal. It no longer possesses the full character of reality. The world appears as a dream, objects as though they belonged to the planet Mars."

Subsequently Schilder (1935) again commented:

> "All the (depersonalized) patients complain about hypochondriacal sensations, noises in the ears, choking sensations, bubbles in the head, and sensations in the heart."

In 1939 he repeated his 1914 definition, and his 1942 descriptions added little to his former statements.

Federn (1928) comments on depersonalization as follows:

> "From our practice and from the literature on the subject we all know the earnest and somewhat uncanny complaints with which severe cases of depersonalization describe their condition, or rather their changing conditions. The outer world appears substantially unaltered, but yet different, not so essentially, so actually, near or far, clear, warm, friendly and familiar, not really and truly existing and alive, more as if in a dream and yet different from a dream. At heart the patient feels as if he were dead, and he feels like this because he does not feel. His feeling, wishing, thinking and memory processes have become different, uncertain, intolerably changed. And yet the patient knows everything correctly, his faculties of perception, of intellect, and of logic have not suffered at all. He knows too how his capacity for feeling is diminished. As Schilder in conjunction with Husserl so rightly says 'The actuality' or as Janet plastically calls it 'Le sentiment du réel' is lacking. In still more severe cases even the unity of the ego has become doubtful: in its continuity the ego is only perceived, not felt. Time, place and causality are recognized and properly applied to find one's bearings, but they are not possessed spontaneously and self-evidently. It is only in the very worst cases that the core of the ego, which as Herman rightly pointed out is connected with the sense of equilibrium, is lost."

In the above examples, quoted from two eminent authorities, it can be seen that, although the descriptions are particularly comprehensive, each author stresses some features which the other neglects. Schilder mentions self-observation, imagery disturbance, distortion of space perception and hypochondriacal sensations, none of which are mentioned by Federn. Federn, while making no reference to the feeling of bodily change, stresses the disturbance of thinking, of memory and of time experience, and comments on the preservation of insight.

Other investigators have not often been so comprehensive in their descriptions as those quoted above, have frequently stressed only those aspects consistent with their own particular approach, or have failed entirely to make any attempt to define or describe what they were discussing. But however admirable the above comprehensive descriptions may be, in fact they are no more than an omnibus collection of complaints made by patients accepted as suffering from depersonalization and hardly even hint at the variability in the fields in which the disturbance may manifest itself.

Malamud (1930) gave an indication of this variability:

> "The reaction can best be described under the term that most patients themselves apply to it, namely, that of a sense of unreality. Most patients when asked to describe it more fully say that they have the feeling that some or all contents in their environment have changed; that they are not as they used to be, or as they are perceived by normal persons; they feel unreal. This change may affect certain objects or contents in the outside world or in the patient himself. It may affect everything; the outside world—different parts of the patient's body and even his thought and imagery."

Later, Malamud (1935) described this variability further:

> "This phenomenon (depersonalization) may in certain cases be manifested only as regards things actually existing outside, whereas the person himself, his own body, and thoughts

> remain unaffected; it may concern mainly contents within the person, leaving the outside unaffected, or finally it may affect the whole situation. Usually the involvement includes both of these factors to a greater or lesser degree."

Mayer-Gross (1935) advocated the retention of the term depersonalization for changes of the self, and the application of the term derealization, created by Mapother, to feelings of unreality and alienation of the outer world. He also emphasized that depersonalization and derealization were commonly, but not necessarily, associated together. He commented too on the fact that a loss of feeling was complained of by all his patients.

Henderson and Gillespie (1944) follow Mayer-Gross's suggestion, separate depersonalization and derealization, and discuss both under the heading of "Unreality feelings". In addition they comment as follows on the non-delusional quality of the experience:

> "Ideas of unreality are probably sometimes psychologically related to nihilistic delusions, but they are not usually delusional, the patient recognizing their abnormality and complaining of the distress which they occasion."

Shorvon (1946) admits the difficulty of defining the boundaries of depersonalization and places the emphasis on feelings of unreality accompanied by retention of insight and lack of delusional quality. He comments as follows:

> "One of our difficulties has been the description of what we mean by depersonalization. Since the mechanism is not known, the definition can only be descriptive. Short definitions can only be insufficient, and a complete one would include aspects to which attention has been drawn by many different workers. However, the experience is distressing and seems to be essentially one of unreality; the world feels unreal; the subject feels that he is unreal, totally or partially; the symptom never seems to have a delusional quality in the type of case discussed in this paper. The patients have insight. They do not say 'I am unreal', but 'I feel that I am not real, although I know I am'. When they speak of a change in their personality, they seems always to refer to a sense of loss."

From the foregoing, it would appear that no clear criteria for the diagnosis of depersonalization have been laid down. Those authors who have attempted to define the concept under discussion have usually resorted to statements containing a mixture of generalization, descriptive remarks and verbatim examples of the complaints of patients concerning their subjective state. Thus, while authors sometimes give a fairly good description of the disturbances experienced by the patients under discussion, there is such an overlapping of the aspects treated that descriptively no clear-cut entity emerges. One is left with the impression that the various disturbances are sometimes related only by an acquired name, and not by similar physiognomy, let alone common parentage.

Lewis (1935) has commented on the relative infrequency with which are found together all the important features of depersonalization in the same patient, and one might be prepared to accept a number of the manifest difficulties as being merely the inevitable product of a loosely organized syndrome were one fully satisfied as to the validity of the individual components of the syndrome. There is, however, much that renders the latter doubtful. It will, therefore, be instructive to examine the salient phenomena which, commonly though not necessarily, are associated together under the heading of depersonalization; and furthermore to consider to what extent each phenomenon in itself possesses a clarity which, as has been indicated, appears to be lacking in the concept as a whole.

IV. The Salient Phenomena of Depersonalization

The most prominent feature in states of depersonalization appears to be the statement by the patient of a subjective awareness of a feeling of change. This feeling of change can extend both to the outer and inner world, and the two aspects may be associated together or occur separately. This statement, however, is inadequate to delimit the condition, for a person may feel a better man after a good meal, and the world may appear a pleasanter place when the sun is out. In both there is the subjective experience of internal or external change, yet both are aspects of normal experience.

In addition, therefore, to the mere subjective awareness of a feeling of change, must be added a further necessary quality of experience, namely that of unreality or strangeness. Subjects considered to be depersonalized usually experience their personalities as changed, unreal and lacking in their former qualities. The outer world seems strange and has "lost its character of reality". Yet even this formulation is inadequate so far, for a pleasant state of detachment in which the subject feels different and in which the outer world appears separate and unreal can again be an aspect of normal experience, being achieved by the employment of various ceremonials and rituals, and by the use of common agents such as alcohol, tobacco and narcotics. Such states are not usually included under the heading of depersonalization, for, lacking an unpleasant quality, there is usually an absence of complaint.

The quality of unpleasantness thus emerges as a further important feature of depersonalization; it is, in fact, the feature which brings the patient to the doctor, for those experiences of unreality, commonly designated as depersonalization are usually unpleasant and at times very distressing.

But what of the patient who insists that his body is not the same as formerly, that his organs are rotting or have disappeared, and that the world in which he is living is a strange one peopled by demons? His is certainly a distressing experience of unreality. In this case, however, the patient has no insight into the purely subjective nature of his experience, and, convinced of the reality of his unreal feelings, he must be considered as deluded. The depersonalized patient, however, is often considered to recognize the abnormality of his feelings of unreality, and, in fact complains of it as something foreign in his experience.

Another important feature, in addition to the above, is a particular type of affective state, often characterized by a complaint of lack of capacity for emotional response, variable in degree and extent.

Other disturbances, such as difficulty in thinking and concentration, impairment of memory, difficulty in time appreciation, poor imagery, subjective sensory abnormalities, etc., are often associated with conditions discussed under the heading of depersonalization, but, for the purposes of definition, they do not occur sufficiently frequently to be considered essential features.

The leading features, then, are a subjective feeling of internal and/or external change, experienced as one of strangeness or unreality; an unpleasant or even highly distressing quality to the experience; the retention of insight and lack of delusional elaboration of the experience; and an affective disturbance characterized often by the complaint of loss of affective responsiveness.

These leading features will now be considered in more detail, the data being largely derived from the intensive study of over fifty patients, all of whom had been diagnosed independently by a number of experienced psychiatrists as suffering from a state of depersonalization. The depersonalization symptoms of these patients either occurred in the course of a depressive illness, or were associated with neurotic symptomatology, or presented as the predominant complaint. States of depersonalization arising on the basis of an organic cerebral disorder or occurring in the course of a schizophrenic illness were also studied, but are not considered in any detail for the purpose of this section. All these cases were examined and studied personally by the author, the treatment of the majority was under his supervision and seven of the cases were treated personally by him.

Feelings of Unreality

"Unreality" is a term which may be employed by patients to describe all varieties of changed experience outside their accepted range of normal variation. Frequently, however, they describe their various feelings of change without at the same time labelling them as feelings of unreality, though they may well agree to do so in direct questioning. Furthermore, one has the impression that the more medical contact the patient has had the more likely he is to formulate his complaint in terms of unreality. It is somewhat similar to the situation in depressive illnesses. In the latter, the patient, ill for the first time and uncontaminated by medical terminology, does not always complain of depression but often says that he is "miserable", "lifeless", "wretched", "lacking in interest", "has lost the joy in living", etc. It is sometimes only later that he says "I'm depressed", or "I'm suffering from depression". In the same way, psychiatrists having enquired of the patient if he feels unreal, what was formerly experienced as a sense of detachment, isolation, lifelessness, etc. may later be expressed as a feeling of unreality.

Miss W.D., aged 54, on being asked how the outside world appeared to her, replied:

> "Trees seem to be stark and staring and ugly, not attractive any more. I used to see people nice and attractive, now even those that are nice look ugly. Even fair people look dark to me now . . . Rooms seem to be smaller . . . my eyes don't seem to focus . . . People's faces seem behind a sort of smoke. Familiar streets seem different."

In all her statements she did not use the expression "unreal". and, on being asked if things appeared at all unreal, she replied:

> "I suppose you might say that things do look unreal in a sort of way, not seeing them as I used to."

In subsequent enquiries as to how the outside world appeared she always employed, amongst others, the expression "unreal". It can thus easily be seen that any attempt to ascertain how frequently the expression "unreal" is used to describe the feelings of change will have little value unless the effect of previous medical contact is taken into account, and the latter assessment presents obvious difficulties. However, an indication of the infrequency with which the expression "unreal" may in practice be used is given by the fact that of twenty consecutive patients diagnosed as suffering from depersonalization and who complained of feelings of external change, ten did not *spontaneously* use the expression. In respect of feelings of change of the personality and of bodily change the expression "unreal" was spontaneously used even less frequently.

Any but a cursory study of patients complaining of feelings commonly included under the head of depersonalization soon reveals that, although the expression "unreal" is often used by patients to describe feelings of change which they do not accept as being within their normal range of experience, to confine the term depersonalization strictly to patients complaining only of "unreality" feelings would be to exclude many whose manner of complaint leaves little doubt that their feelings do, in fact, transcend their normal accepted range. "Strange", "unfamiliar", "dead" and many other terms often are used in the attempt to describe similar feelings. It therefore appears that, unless a specific complaint of unreality is made or admitted to by the patient, it must be left to the psychiatrist to decide whether, in fact, he is justified in regarding the complaint as equivalent to one of unreality. This, in practice, is done by considering the quality of the patient's complaints, his attitude and his reaction to his experience of change.

However, as soon as one discards objective criteria in the statements of the patient in making the diagnosis of depersonalization, one is confronted by the fact that the experience of unreality, or its equivalent, is not sharply delimited from the normal, but that there is a gradual transition from the normal to the abnormal.

Mrs. E., aged 39, describing her experiences, said:

> "I looked in the glass and said 'Can that be me?' I looked so haggard and senile. I think that if I had had a couple of pints of blood it would have done me good. I felt as if I had entered on another phase of my life, a miserable, horrid stage. I felt as if I'd never be as I was before, something seemed to have gone for good and I was no longer the same."

Although the first part of the statement appears to attribute the changed appearance and function to poor physical health (e.g. the improvement expected after two pints of blood), the latter part contains complaints of personality change and loss, which, though no doubt in this case expressing the patient's feeling of depression, yet differ not so much from similar complaints made by patients expressing themselves in more definite terms of unreality. It sometimes appears as though the more striking the contrast between the appearance and function in health and illness, the more likely is the patient to formulate his experience in terms of unreality or strangeness.

This leads to a further consideration, namely, to what extent metaphor, rather than experience, must be held responsible for the unreality quality of certain expressions used by patients. Lewis (1934) has commented on this aspect in relation to affective disorder:

> "There is the possibility of there being in some no more than a verbal difference between expressions of loss of interest and inability to enjoy, and the feelings of unreality; when a patient says 'Everything looks as black as black can be', or 'Everything seems empty and dull and dead and I don't care about anything', or 'There is no love in me, my heart is dead', it is difficult to decide how much of objective reality there is in the words, or how much metaphor."

Not only, however, may there be variations within the individual in his attitude to the degree of abnormality of his experiences, but what one patient may consider as abnormal may well be considered as within his normal range of experience by another, or by the same patient on a later occasion.

It appears that the degree with which a patient regards an experience as unreal or strange is often in inverse relationship to his familiarity with it. Thus, one patient suffering from a depressive illness who, only on direct questioning admitted to a feeling of being isolated and detached from the outside world which seemed lifeless, made the following reply when asked if she or the outside world appeared unreal:

> "No, it is much the same feeling as I get when I am drunk, I've often had it before, I think."

Mrs. S., who for the past twenty years since adolescence had suffered frequent attacks in which her body felt completely absent, when asked if she felt unreal or strange, replied:

> "I may have done so once. But I have got so used to my attacks that I just put them down to my nerves and hardly notice them."

Clearly, she had become so familiar with her disturbance of body image that, for her, it was part of her normal experience. Miss C., aged 39, who had suffered a number of attacks since their onset at the age of 14, described her experiences as follows:

> "Everything has gone, I've no desires, joys, or feelings of affection. My conscious mind has stopped working, it seems to be controlling the back part. I've come to a standstill. I feel I don't seem to exist. The soul part seems to have stopped living. My brain feels as though it is ripped in two."

When asked if she felt at all unreal she however replied:

> "I felt unreal when it first came on at 14, but after a time I got used to it and found that it was just a sort of emotional block. After that I did not seem to feel so unreal."

In this case also, frequent repetition and the partial "insight" had enabled the patient to accept her experiences of change as no longer so foreign to her.

We are thus confronted with the highly individual quality of the feeling of unreality, and it is difficult to see how the actual complaint of unreality or other equivalent complaints can usefully be used for defining clearly a state of depersonalization. Any attempt to insist that the feelings of change must be formulated by the patient strictly in certain terms before the disturbance can be accepted as coming under the heading of depersonalization would do violence to the facts, and could at best only produce an arbitrary terminological frontier, sometimes having little relation to the terrain of the country. "Unreality", therefore, can be considered only as a useful generic term, having, when considered as a complaint produced by the patient, too narrow a value in itself for the purposes of definition.

The Unpleasant Quality

It has already been pointed out that, in a number of common conditions (e.g. alcoholic intoxication) there may be a feeling of detachment accompanied by a feeling of change of the self or the outside world. Furthermore, this feeling, far from being a distressing one, may in fact be pleasant. Such conditions have not usually been considered under the heading of depersonalization owing to the lack of unpleasantness in the quality of the experience. Mention has also been made of patients in whom the depersonalization experience had largely lost its distressing quality owing to familiarity through repetition. It is perhaps, however, insufficiently appreciated that the unpleasant quality with which the experience of depersonalization may be invested is related not only to the immediate setting in which the experience occurs, but also to the previous psychopathology of the patient.

In a series of fifteen consecutive patients, all of whom complained of depersonalization experiences, particular attention was given to their insight, attitude to and reaction towards their symptoms. Enquiry was also directed towards relevant fears and preoccupations which might have been in existence before the first onset of their symptoms. The most distressed patients appeared to be those who feared that they were going insane, would die, or suddenly pass away.

Of the eight patients who complained of fears of going insane, three had a family history of psychosis in a parent and one of psychosis in a grandparent. All these four patients had been preoccupied for some time before the onset of their symptoms with the fear that they too would become insane. Of two of the remaining four patients, one had for some time previously feared that as a result of her husband's spiritualistic activities her reason would become deranged; the other had since childhood feared the confirmation of her mother's warning that masturbation would lead to madness. In only two of the eight patients complaining of fears of insanity was there no apparent evidence of preoccupation with insanity before the onset of their symptoms.

One patient expressed mild fears that she might disappear and pass away.

No relevant preoccupations could be discovered in her previous history, and she herself formulated her condition as due to wanting to run away from things that frightened her. Another patient, however, who was extremely disturbed during his attacks by fears that he might die, had been preoccupied for years previously with fears of bodily illness or of dying suddenly of cerebral haemorrhage as had his grandmother.

The remaining five patients all considered that their condition was a form of nervous disorder which would ultimately clear up. None expressed any particular fears in relation to the significance of their symptoms, and in none could any relevant preoccupations (e.g. fears of insanity, illness, death, etc.) be discovered in their past history. Of the whole group of fifteen patients their symptoms appeared to cause them the least distress.

The above examples clearly indicate the degree to which the unpleasant quality of the depersonalization experience is dependent upon the facility with which it reactivates fears, particularly those of insanity and dying, previously held by the patient. The quality of unpleasantness, therefore, cannot be considered as a very reliable feature when considered for the purpose of definition of depersonalization.

The Non-Delusional Quality

Lewis (1934) included amongst his examples of depersonalization associated with depressive states a number which were unmistakably delusional in nature. Thus M.S. (Case 52) said:

> "I have no soul, I have killed myself."

Lewis states that several patients, observing some change, thought they were being tricked. Thus A.H. (Case 27) denied the identity of her sister, declared that she was in a strange ward in a strange hospital, that her sister's letters were actually from an impostor. M.C. (Case 15) after sending in great haste for a priest to make a confession, declared that he was only a bogus priest when he came; she denied that she was in hospital and said:

> "Queer people, queer things here. People seem to come and go in a flash like."

L.W. (Case 61) also denied that he was in hospital or that the physician was what he purported to be, insisting that everyone was acting.

Mayer-Gross (1935) considered that some of the delusional changes of the perceived world or of the personality occurring in early schizophrenic states should not be included under the heading of derealization and depersonalization. He, however, admitted the close relationship between delusional ideas and depersonalization and considered that this relationship needed to be cleared up. He further commented on the relationship between somatic depersonalization and hypochondriacal delusions, quoting Schilder's view that somatic depersonalization was the germ of such delusions. He further suggested that the fact that only young people appear to be affected by depersonalization probably accounted for the infrequency of delusional development, and that "the hypochondriacal delusional psychosis of middle-aged persons (e.g. the nihilistic ideas of involutional melancholia, the *délire de negation*, etc.) is a sort of equivalent to depersonalization in younger persons".

Mayer-Gross thus left the problem undecided, for, while rejecting the right of some of the unreality states of schizophrenia to be included under the heading of depersonalization, he admits that in other conditions delusional development, although infrequent, can occur. He does not, however, commit himself as to whether, when the latter condition has occurred, the symptoms should be considered under the heading of depersonalization or not.

Henderson and Gillespie (1944) state, in this connection:

> "Ideas of unreality are probably related to nihilistic delusions, but they are not usually delusional, the patient recognizing their abnormality and complaining of the distress which they occasion."

The non-delusional nature of the cases described by Shorvon (1946) appears to be largely the result of selection:

> ". . . the symptom never seems to have a delusional quality in the type of case discussed in this paper."

Galston (1947) arrived at much the same position, arguing by definition:

> "The differential diagnosis between depersonalization as a definite psychic disease and depersonalization as the component of other psychiatric disorders is not difficult. It is made entirely on the basis of exclusion on the score of the very definite insight into his condition shown by the depersonalization patient. The true case of depersonalization never loses contact with reality, and no matter how fantastic may be the perceived changes within himself or the outside world which he reports, these changes always remain incredible to the patient."

The problem of the delusional quality in depersonalization states can probably best be appreciated by considering those cases in which the delusional element presents in a variable or fluctuating manner. In a consecutive series of twenty patients complaining of depersonalization symptoms, four such cases occurred.

Miss W.D., aged 54, suffering from an involutional illness in which feelings of change occurred in the setting of depression, made the following comments on herself:

> "It's as if I am living in a world of horror all on my own, I feel cut off. I'm a sort of horror people would not want to be near . . . Trees seem to be stark and staring and ugly, not attractive any more. I used to see people nice and attractive, now even those that are nice look ugly. Even fair people look dark to me now. The rooms seem to be smaller. My eyes don't seem to focus, familiar streets seem different and people's faces seem behind a sort of smoke . . . My body does not seem any shape or form. There's a hollowness, like a 'sack tied up in the middle' sensation. I *know* my head has shrunk, I think my legs must have shrunk, in fact everything has shrunk. My feet seem to lose themselves at times, and I feel as though I have no neck. I've got a terrible appetite and yet I feel empty all the time . . . Now that I'm wicked, I'm just horrid. I *know* I look horrible and I feel that other people don't want to look at me for the same reason."

The above complaints are so varied, both in form and content, that the terms depersonalization, derealization, hypochondriacal sensations and bodily delusions are all applicable. The case illustrates well the co-existence of the "as if" formulation and the frankly delusional idea, and in this case the former was not in the immediate process of developing into the latter.

Mrs. M.G., aged 45, suffering from agitated depression, complained:

> "This is a living death, I have no self, it is gone and nothing is left."

Later, when less depressed, she described herself as "detached and apart"; objects seemed "distant and different".

Miss P., aged 28, suffering from a depressive state, was so struck by her strange reflection in the mirror that for a short while she was convinced that she appeared peculiar and that other people must be laughing at her and talking about her.

Mrs. P., aged 30, suffering from a depressive state, was so disturbed by her feeling of bodily strangeness and the unreality of the outside world, that for a while she was, in spite of all reassurance, convinced that she was either mad or a different person and begged to be certified to avoid further uncertainty.

It appears that feelings of bodily or external change or disturbance occurring in a totally delusional setting have been accepted by many authors as arising from the delusional state or perceptual disturbance of a schizophrenic, depressive or organic disorder, the question of depersonalization not therefore arising. Cases of the type quoted above, however, which have either a partial or fluctuating delusional quality, again raise the problem of the boundaries of depersonalization. While the majority of cases met with clearly fall either into the delusional or the non-delusional group, there remains a group of cases which cannot be so categorized. The feelings of change of this group may be delusional in some respects but not in others; there may be a fluctuation between a complaint having an "as if" formulation and a frankly delusional conviction; or, as may commonly occur in a schizophrenic state, the whole picture may be progressively delusional in its development and remain so.

It is apparent, therefore, that the presence or absence of a non-delusional quality to the complaint of a feeling of change may offer little help in the decision as to whether or not a condition should be classed under the heading of depersonalization.

Loss of Affective Response

Mayer-Gross (1935) found that "lack of feeling" was present in all the twenty-six cases of his series. He mentioned, however, a patient with the opposite state, namely, loss of emotions without any disturbances of the self. The complaints of this patient were as follows:

> "My self is the same as before, but feeling seems gone away altogether. My body is not changed, not unreal. Lying down I tried to force the feeling back to me. Feeling of remorse, passion, everything has gone. I have only the feeling of being alive."

Lewis (1934), who also comments on the presence of loss of affective response in the absence of feelings of unreality, suggests the possibility of there being no more than a verbal difference between expressions of loss of interest and inability to enjoy on the one hand and feelings of unreality on the other. In the light of what has already been discussed above concerning the use of the term unreality by patients, this possibility appears to be a very likely one.

Both Mayer-Gross and Lewis, as well as others, comment on the apparent paradox of the complaint of loss of feeling in patients who obviously experience suffering from the alleged death of their feelings. In order further to study this phenomenon, 26 consecutive cases presenting depersonalization symptoms were investigated with particular reference to the affective features. It was found that in all cases there was a complaint of loss of interest in the outside world, and in 19 cases a complaint of loss of affection towards those previously held dear to them. In 18 cases there was increased self-concern and anxiety about their present condition and future. In 18 cases there was a complaint of loss of capacity to worry over outside events which previously would have been anxiety provoking. In 20 cases there was a complaint of increased feeling of irritability. Fourteen cases exhibited a combination of lack of capacity to worry over outside events together with increased self-concern. It was such cases that demonstrated best the apparent paradox of manifest suffering associated with the complaint of lack of feeling. Patients would explain how traffic, the sight of blood, meeting strangers and other situations and objects were no longer anxiety-provoking as formerly, how they had lost all affection for their dear ones and could raise no interest in anything. At the same time they would describe vividly the distress which they were suffering as a result of their lack of feeling together with various preoccupations and anxieties about their present state and the future. The apparent paradox resolved itself into a problem of contrast when greater emphasis was placed on the fact that there appeared to be an increased responsiveness for anxiety of internal origin, whereas that of external origin was reduced. The commonest affective pattern was that found in 12 of the 26 patients, namely, increased irritability and self-concern associated with reduced capacity for interest, affection and concern for outside events.

It appears then that states of depersonalization may sometimes exhibit a characteristic affective pattern. On the other hand, this latter pattern can sometimes be present unassociated with the complaints commonly accepted as being those of depersonalization. It may be that this latter occurrence is the result of a difference in the attitude of the patient, or a difference in the verbal formulation of the complaint; but in either case the definition of depersonalization is in no way rendered easier.

V. CONCLUSION

The four salient features of states of depersonalization namely, the feeling of unreality, the unpleasant quality, the non-delusional nature and the affective disturbance have now been examined in some detail. It has emerged that not only is depersonalization a loosely organized syndrome, but that the criteria of the salient features themselves are often in doubt or lacking in the clarity necessary sometimes for the establishment of their presence. It is now understandable why it is that the boundaries of depersonalization have never been clearly defined. The nature of the territory is such that any attempt to do so would only produce an arbitrary frontier, often including within it inhabitants essentially dissimilar, while excluding many others having a good claim to admission. Why the territory should be of such a nature will be considered in more detail in a second paper. It is apparent, however, that there can be no certainty that various authors have been dealing with exactly the same phenomena, and it may well be that, if the latter condition could have been achieved, a greater measure of agreement would have emerged. For some have treated depersonalization as though it was a clear-cut clinical syndrome, others as though it was merely a symptom; but what is quite clear is that the phenomena know no boundaries. Much of the confusion appears to have originated from the faults which Lewis (1949) has claimed are common to both psychiatry and philosophy, namely:

"Schematization without sufficient evidence, uncritical trust in the adequacy of language, and contention because the contenders do not agree about their axioms or fail to make them explicit."

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DEPERSONALIZATION

II. CLINICAL SYNDROMES

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I. THE EXPERIENTIAL BASIS OF DEPERSONALIZATION

IN an earlier paper (Ackner, 1954) various aetiological approaches to the problem of depersonalization were examined and no common agreement was found. The salient phenomena of depersonalization were examined and found to be so lacking in precision that no clear-cut boundaries could be considered to exist. This explained the lack of any truly adequate definition of depersonalization and suggested that some of the past disagreements had been the result of failure to make explicit the phenomena under discussion.

How then are the disorders in which patients formulate their complaints in terms of unreality, strangeness, etc. to be regarded? For such disorders are not uncommon. Indeed, in view of the fact that every mental disturbance must be accompanied by an altered experience of the self and/or the outer world, it is somewhat surprising that such disorders are not more common. Now, though it is probably not true to say that "almost every neurosis has some phase of depersonalization" (Schilder), it is probably true that almost every mental disturbance is capable of being expressed by the patient, to a greater or lesser degree, in terms commonly accepted as being those of depersonalization. The problem of the nature and aetiology of depersonalization thus resolves itself into the question as to what are the conditions which must obtain in any mental disturbance before a patient's feeling of change is formulated in terms of unreality or in some other way indicating a peculiar strangeness of the experience.

Experience of change, whether arising from within or coming from the external world, normally becomes organized within the framework of accepted experience. The person who feels limp or full of aches and pains, or for whom the outer world seems dull and others unfriendly, may perhaps accept this change as being the result of fatigue, disease or injury. The new experiences have been accepted and organized within the framework of normal or comprehensible experience.

It may be, however, that such experience of change is evaluated falsely and maintained irrationally to the extent that it becomes delusional in nature. Similar experiences to the above may be misinterpreted, the patient regarding himself as changed into a stone, or his body as twisted or rotting, or the world as devastated, its inhabitants strangers from another planet. The experience of change has been accepted, but only in virtue of having been organized within a delusional framework. (In psychopathological terms, it has been completely projected.)

In both the above examples, experience of change has occurred, organized in the first case within the framework of normal experience, and within a delusional framework in the second. In both cases the individual has felt changed in relation to either his inner or his outer world, but to apply the term depersonalization to the complaints of either would seem to allow an extension of the term to cover any altered experience of the self or the outside world, thus making it applicable to the whole range of mental disturbances.

Consider, however, the patient who feels like an automaton, with no personality, whose body feels dead and unresponsive, or for whom the outside world appears strangely flat and still, and who feels that everything seems so unreal that he fears he must be going mad. He is not able to accept his experiences of change within his normal experiential range, nor has he organized them within a delusional framework, The experiences, in fact, remain partially outside, peculiar, foreign, strange, unreal and inexplicable except in terms of incipient madness. If there is then a delusional development, the new experiences will tend to be included within the delusional system and, to the extent that they acquire a position within the latter, they will be transformed, with accompanying reduction of the feeling of strangeness and unreality. If, however, the experiences can eventually be accepted as within the normal experiential range, then their strangeness and unreality will again be reduced and they will be formulated in other terms. The former transformation is essentially the one to which Mayer-Gross (1935) refers when discussing the occurrence of depersonalization at the stage of "minor intensity" of a psychosis, the condition disappearing as the psychosis develops. Examples of the latter transformation have already been given above when discussing patients whose attitude to and formulation of their symptoms changed with time.

Depersonalization experiences can thus best be regarded as occupying a position somewhere between the delusional and the non-delusional. There is a failure to integrate new experiences into the total organization of the psychic functioning, and at the same time the latter remains relatively intact. As a result, the experiences are viewed as something partially outside, and remain strange, peculiar, foreign and unreal. Any increased tendency to integration will be in the direction either of the delusional or of the non-delusional, and to that extent the complaints will change in form and the term depersonalization will be less applicable. The occurrence of depersonalization complaints may thus be considered to originate from the relative failure of integration of such new experiences as give rise to a change in the relationship of the individual to his world, his body, or his own psychic functioning.

This lack of integration may affect all, some or only one modality of experience. Furthermore, where this lack of integration affects a number of different experiences, the degree of lack of integration may vary between the particular experiences, as may also the tendency to organization in the direction of reality or delusion. It is apparent, therefore, that any complaint can vary between an understandable feeling of change, an "as if" formulation, a complaint of unreality or a frankly delusional conviction. It is also apparent that various such complaints can, in certain circumstances, all exist at the same time in the same patient, being variously applied to different fields of experience.

Depersonalization thus cannot exist as an entity, for the concept is only an artificial isolate within the field of failure of integration of experience. There are all degrees of such failure, there are numerous varieties of experience which may be affected by such failure, and the failure may affect all or only a limited part of an experience so affected. All attempts, therefore, to define rigidly the boundaries of depersonalization are bound to be fruitless, for so many continua of experience may be involved.

It follows that patients complaining of depersonalization symptoms are not always having "essentially the same experience", as has been alleged by Mayer-Gross (1935). The feeling of change may affect many different experiences, but in common they all have a particular failure of integration of experience characterized by a lack of complete organization within the framework of reality or delusion. The actual experiences may be widely dissimilar, only the lack of integration gives them a common flavouring of unreality or strangeness.

It is now proposed, in future discussion in this paper, to include under the heading of depersonalization those complaints of a change in the relationship of the patient to his world, his body or his own psychic functioning which are formulated in terms which indicate that, to the patient, they have the quality of unreality, strangeness, foreignness, etc. and which, whilst not accepted by the patient as within his normal range of experience, are yet not expressed in frankly delusional terms.

As depersonalization complaints are not necessarily based on similar experiences, there can be no common aetiology. But is there a common origin for the particular failure of integration postulated above?

II. The Capacity for Integration of Experience

The capacity to integrate various data, whether originating from within or without, into a meaningful whole accepted by the individual as part of his own experience is probably not present at birth. It appears to develop slowly and to accompany the gradual differentiation of the original dual unity of the ego and non-ego. Presumably an adequate biological substrate must exist for the effective organization of experience. Presumably, also, the environment of the individual must be such that the experiences to which he is subjected at any given stage of development are not so overwhelming as to render them incapable of being organized on a reality basis. From this it would follow that, developmentally, the capacity for integration can be impaired either by inadequacy of the biological substrate, or by the milieu in which development is taking place being unfavourable. Having regard to the dynamic inter-relationship of the individual and his milieu, it is apparent that the development of the capacity for integration must proceed on a psychobiological basis. It follows, therefore, that both fields must be considered when attempting to assess the effects of particular defects in one. For example, a favourable environment may effectively compensate for the disruptive tendencies of the effects of a severe cerebral birth injury; any threatening experience may be disintegrative if the relationship to reality is still in a tenuous stage.

An individual may thus develop without ever achieving a capacity for integration adequate for full reality adjustment. He may, to a greater or lesser extent, be aware that his relationship to the outside world, to his body or to himself as a personality has always lacked a certain quality of reality. More commonly the relationship to reality may be merely an insecure one. Areas of vulnerability may exist enabling an adequate stress, either psychic or biological to have a disintegrating tendency. A toxic illness, cerebral disease, the death of a parent, unacceptable feelings or urges, and so on, may thus be capable of producing depersonalization complaints in some patients and yet not in others.

The origin of the failure of integration of experience is thus rooted in the psychobiological development of the individual and although early psychic factors, environmental stress and innate or acquired cerebral dysfunction have all been invoked, in the majority of cases the condition is likely to be the product of the interaction of many such factors.

III. Depersonalization Syndromes

If it is true that depersonalization type of complaints occur as the result of the product of the interaction of various factors which lead to a certain type of failure of integration of experience, then it is likely that conditions will exist in which certain of these factors are more important than in others. If this is true, then it should be possible to delimit various different depersonalization syndromes on the basis of the particular factors chiefly concerned. Such different depersonalization syndromes, however, would essentially be convenient isolates. In practice the majority of conditions, although more nearly approaching the characteristics of one syndrome, would be likely to have some features in common with others. This, however, would be no objection if it led to greater understanding, and, in fact, would merely parallel a now accepted attitude to many psychiatric syndromes. The syndromes described below appear to the author to be those of most significance.

Organic Depersonalization Syndrome

That depersonalization symptoms can have an undoubtedly organic cerebral basis is well accepted, and Schilder (1935), Brock and Wiesel (1942), Bychowski (1943) and others have described cases in which similar symptoms may be determined either predominantly by an organic or by a psychogenic disorder. Such symptoms have been reported in a number of conditions, which include encephalitis, epilepsy, chorea, toxic and delirious states, head injury, tumour, carbon monoxide poisoning, mescalin intoxication, etc. That they should occur in such a variety of conditions is not surprising when one considers that anything which leads to an altered state of consciousness or interferes with the final associative integration is bound to result in some change in the relationship of the individual to his world, his body or his own psychic functioning.

This failure at the highest functional level of cerebral activity may occur as a result of some of the normal components of experience being altered in such a way that their final integration is rendered difficult. For example, in vestibular disorders, abnormal afferent stimuli may give rise to sudden changes in the individual's experience of his body or the outside world (Schilder, 1935). It is likely, therefore, that any marked alteration in the stream of information which is being blended into the normal state of continuous awareness will, to a greater or lesser extent, affect the quality of that awareness as a whole.

On the other hand, the failure of integration may be the result of disorder through disease, tumour or abnormal discharge of the highest level integrating systems of the brain. The latter function is now believed by many authorities to be performed by thalamo-cortical circuits involving an intimate relationship between sub-cortical centres and frontal, temporal and parieto-occipital projection areas of the cortex. From this it follows that disorder at either the cortical or sub-cortical level can lower the integrative capacity of the brain. It has for long been recognized, however, that disorder in the temporal region of the cortex, especially epilepsy, is particularly liable to give rise to states of altered awareness, dreamy states and depersonalization phenomena. The work of Penfield on the temporal lobe has shed much light on these phenomena and Penfield and Rasmussen (1950) have commented:

> "Certain mental states produced by temporal stimulation and also appearing in epileptic dreamy states are difficult to classify. Take for example the patient who says he feels as if he were not here, as though he were going away, as though he were out of this world, as though he were in some other place from which he could contemplate his own person in its actual surroundings. Sometimes this may be an illusion of vestibular sensation. At other times it

> is a feeling that the ego is removed from the body. In this case it is not an illusion in regard to sensory perception so much as it is an alteration in the individual's opinion regarding his relationship to his environment or his relationship to his body. It might be considered an illusion of introspection instead of an illusion of sensory perception.
>
> "It is difficult to interpret these abnormal states so as to throw light upon normal function within the temporal cortex. It is evident, however, that there is localization here of neurone processes that are essential (*a*) to judgment of intensity of visual and auditory sensations, and (*b*) to comparison of present perceptions with past experience."

It would seem, therefore, that depersonalization phenomena involving various modalities of experience may occur as a result of disorder in many areas of the central nervous system. However, the thalamo-cortical system, in virtue of its integrating function, is probably of the highest importance, and, within this system, the temporal cortex, closely connected with visual and auditory impressions and memory functions, has the greatest claim to be significant.

It is, perhaps, necessary to emphasize again that mental phenomena such as depersonalization symptoms can never be entirely organic in origin for, being concerned with changes in experience, they are indivisably related to the mental functioning of the individual. Thus, in cases with a large organic factor, not only may the form of the symptoms be partly psychogenetically determined, but often their occurrence will be related to periods of emotional stress which make manifest a latent deficiency in the biological substrate for integration.

Schizoid Disturbance of Identity. (See Appendix I—Case 1.)

Cases occasionally occur in which a patient alleges that he has never felt real, that his present symptoms have, to a lesser degree, always been present. One sometimes suspects that this is a retrospective judgment, and that such patients are, in fact, essentially similar to those who state that they now see that they have never experienced things as real, but have never realized it before. The "onset" of the symptoms in these cases may thus be a spurious onset, it being merely the point at which the patient becomes acutely aware of his underlying difficulties. A close study of such patients usually indicates that their inability to make genuine contact in their relationships has, in fact, been lifelong but never fully apparent to them.

This inability may, however, manifest itself in a number of ways, all of which have in common an inner poverty of genuine experience. Nearest to those expressing themselves in frank depersonalization terms are those patients in which there is a chronic state of lack of conscious pleasure. Glauber (1949) has named such a state "Primary anhedonia". He considers that the manifestations of this emotional state are described in many terms, which include withdrawal, detachment, isolation, alienation, chronic aloofness, listlessness, emotional block, etc. However, it obviously merges with those "schizoid" personalities who have always felt more or less isolated from their fellow creatures, somewhat separate from events, detached from their own activities or unable to experience deep feeling in their interpersonal relationships.

Eisenstein (1951) discussing what he calls the borderline category of narcissistic neuroses, describes similar patients:

> "Superficially, patients of this type appear to function at a neurotic level, They hold jobs or attend school, enjoy musical or artistic interests, socialize or engage in sexual relations, yet suffer from deficient emotional contact and from a seriously impaired sense of reality. Clinically they complain of varying degrees of boredom, depressions or free anxiety and present abortive paranoid features, transient feelings of reference or depersonalization—often with acute exacerbations –that are dynamically rooted in serious psychopathology."

From the danger of the awareness of their lack of genuine feeling some patients seem to be protected by the spurious validity of experience given to them by satisfactory identifications within their environment. Such identifications, however, are on the basis of infantile dependence, mature differentiation between the self and the object never having fully been achieved. Deutsch (1942) has described such cases, naming them "as if" personalities and considered that they were related to depersonalization, "differing from it in that they were not perceived as disturbances by the patient herself". In these patients their whole relationship to life had something about it which was lacking in genuineness and yet outwardly ran along as if it were complete.

> "It is like the performance of an actor who is technically well-trained but who lacks the necessary spark to make his impersonation true to life."

Deutsch considered that the loss of affect was not identical with the coldness of the repressed individual whose disturbance was a defence against the realization of forbidden instinctual drives. There was instead

> "a real loss of object cathexis due to a failure to synthesize the various infantile identifications into a single integrated personality. The apparent normal relationship to the world corresponds to a child's imitativeness and is the expression of identification with the environment."

Deutsch states that, whereas the objects with which hysterics identify themselves are the objects of powerful libidinal cathexes,

> "In 'as if' patients an early deficiency in the development of affect reduces the conflict, the effect of which is an impoverishment of the total personality which does not occur in hysteria."

This early disturbance of affect, described by Deutsch, may perhaps be similar to that discussed by Klein (1946) when describing the processes underlying identification by projection as a combination of splitting off parts of the self and projecting them onto another person. This defensive splitting of the infantile ego was considered by Rosenfeld (1947) to be the basis of depersonalization.

However, one cannot ever assume that psychopathological explanations, whether valid or not, are necessarily of prime genetic significance. The early deprivations and other traumata to which patients of this type may have been subjected are often no more severe than those to which others have made a satisfactory or different adjustment. It may be, as Fairbairn (1941) has suggested, that in the determination of the form of mental reactions some part may be played by factors such as the relative strength of the inborn tendencies to sucking and biting. In the presence of a disturbed infant-mother relationship, exaggeration of the former would lead, according to Kleinian theory, to schizoid tendencies and exaggeration of the latter to depressive tendencies. The external factor, in the form of the mother, would thus be non-specific. It may be, in the cases under discussion, that there is some disturbance of the biological substrate resulting in an exaggeration of primitive needs and urges which renders their normal integration more difficult. Or there may be an inherently low capacity for integration itself, or this capacity may be late in maturing.

Whatever the origin, the fact remains that, in the patients under discussion, the individual never appears to have developed an identity clearly enough defined to be able to relate himself fully to experiences coming from within or without. The depersonalization complaints of such patients appear to be related to varying degrees of failure within the ego structure itself. Their complaints of feeling unreal thus have some substance for, in fact, to a greater or lesser extent, they have never established an adequate relationship with reality.

Cases appearing to have this early weakness of ego development have therefore been considered together under the heading of "schizoid disturbance of identity". Their common characteristic appears to be a lifelong failure to develop a genuine affective relationship with external objects, this impoverishment never being really overcome, though often masked or compensated for by various measures. Of those cases of this type, studied by the author, only one was treated extensively on analytical lines. In this case material emerged which often indicated disturbed oral mechanisms and recalled that described by the Kleinian authors. However, there were many schizophrenic features and one has the impression that all those cases in which this early disturbance of ego formation is alleged are either gross schizoid personalities, or potential, borderline or actual schizophrenics. Explanations of depersonalization symptoms in terms of early disturbance of ego development or in terms of a relationship to schizophrenia may well be valid for this "schizoid" group of patients. However, to extend such explanation to all patients suffering from depersonalization symptoms seems far from justified.

The prognosis for this schizoid group is without doubt bad in the absence of treatment, and treatment, to be successful, needs to be intensive and prolonged. Though symptomatic improvement may be achieved by treatment which does not involve widespread modification of the underlying personality, only a long-term analytical approach can be expected to have any influence on the fundamental ego weakness, and even with this there is little certainty of success.

Hysterical Disturbance of Identity. (See Appendix I—Case 2.)

At a later stage of psychological development disturbed identifications appear to lead to depersonalization symptoms. Wittels (1940) expressed the view that

> "the cause of depersonalization is an unusually great number of phantom figures leaving the ego in such a position that it cannot decide which one of the figures has to be acknowledged as its representative."

He considered that in all cases something was wrong with the infantile relation between the patient and the father with the result that

> "the super-ego is responsible for the disintegration of personality by condemning all the phantoms without exception as unreal."

Whatever may be the validity of the above theoretical interpretation, cases do seem to occur in which depersonalization symptoms manifest themselves after the loss or devaluation of an important identification object, or alternatively as the result of confusion over multiple identifications. The latter confusion may be due to some environmental factor or occur during the course of psychotherapy which has resulted in increased awareness of the multiple identifications. In these cases the ego disturbance appears to have occurred at a later stage of development compared to the schizoid group previously considered and the objects of identification (commonly the father) are invested with a strong emotional charge. There is no tendency to projective or disintegrative reactions, and the personality usually manifests a number of hysterical features.

Other Hysterical Depersonalization Syndromes. (See Appendix I—Case 3.)

Many analytical writers have considered depersonalization symptoms to serve as a defence against forbidden or unacceptable urges and feelings. Certainly in many cases it does seem that a more or less satisfactory solution to the conflicts and difficulties with which the individual is faced has been achieved by states of depersonalization based upon the mechanism of denial and repression.

It is, however, only too easy to explain away most depersonalization symptoms by regarding them as defences and there is no doubt that this facile approach is too often used. Nevertheless, there are many cases in which the symptoms only appear capable of being satisfactorily understood in terms of hysterical mechanisms, and the cases considered below have been included for a number of what appear to be valid reasons. Firstly, many of the cases presented a striking immaturity of appearance, independently remarked upon by many of the psychiatrists with whom they had come into contact. This immaturity, equalled only by those patients in the two groups previously considered, did not appear to be of such common occurrence in cases of depersonalization arising on a different basis. Secondly, an understandable and apparently adequate relationship appeared to exist between the protective function of the symptoms and the life situation of the patient. Thirdly, in common with many hysterical personalities, a number of these patients were able to formulate the mechanism of their complaints at an intellectual level whilst maintaining such a capacity for emotional dissociation that effective insight was impossible for them to achieve. Some, when questioned as to how they thought their symptoms had arisen, spontaneously described their complaints in terms of escape from difficulties. As far as could be ascertained this was not the result of previous medical suggestion. Fourthly, although affective symptoms occurred in a number of patients in this group, they occurred episodically and were not usually a persistent feature. In fact, what was usually so striking about this group of patients was the ease with which outwardly they often conducted their activities. There was a frequent disproportion between their complaints and the evident enjoyment which they derived from the social life of the hospital, many of them entering with apparent enthusiasm into all the recreations and entertainments provided. Some admitted to being symptom-free in hospital but suffering from unreality feelings when having to make journeys outside the grounds.

The depersonalization complaints of these patients appear to be the consequence of the relative lack of integration of unacceptable feelings and experiences. Denial of the reality of the outside world will enable the individual to detach himself from its dangers. Denial of the reality of the body will effectively banish dangerous needs and urges, and, by denial of the self, they can be disowned. Forbidden or unacceptable feelings can be held at bay by repression of affect, and the resulting emotional dissociation from the outer world may be expressed in depersonalization terms. Furthermore, states of affective unresponsiveness occurring initially on a depressive basis may be perpetuated hysterically long beyond the disappearance of the depressive element and expressed also in depersonalization terms.

Whilst a few cases in this group who have been under the author's care have recovered or improved, the therapeutic results are far from satisfactory. It is not difficult to see why this should be so. The state of depersonalization can be a very effective solution to various conflicts and difficulties. It is true that these patients often complain bitterly of their lot, but their behaviour usually belies their words and the relative absence of manifest anxiety is a measure of the success of the protective mechanism. There is here something in common with the hysterical motor conversion symptom, a condition notoriously intractable when the physician has nothing more attractive to offer the patient in exchange for his symptom. Furthermore, in many states of depersonalization the lack of recognition of the hysterical factor, together with a preoccupation by the unwary with the wealth of introspective description which these cases frequently produce, often contributes much to the intractability of the condition. Hysterical motor paralyses abounded when their value as interesting demonstration cases was high. Hysterical "emotional paralyses" presenting their complaints in terms of depersonalization often stimulate much psychiatric interest and in some hospitals the condition is recognized to be highly contagious at times when medical interest is running high!

At this stage it may be pointed out that the "pure" depersonalization neurosis of many writers, in which the depersonalization symptoms occur in the absence of any other symptomatology, by definition, can correspond to either the schizoid or hysterical syndromes described above. The distinctions between these two syndromes are enough to demonstrate the lack of value in the concept of "pure" depersonalization neurosis.

Depressive Depersonalization Syndrome. (See Appendix I—Case 4.)

The symptomatology of depressive illnesses may conveniently be considered from two aspects. There is the "positive" symptomatology associated with the unpleasant affect and expressing itself in terms of misery, hopelessness, remorse, guilt, suicidal feelings, etc. There is also the "negative" symptomatology associated with the emotional and physical inertia and expressing itself in terms of lack of feeling, lifelessness, lack of interest, loss of affection for others, feelings of heaviness, easy fatiguability, etc. It is probable that most depressive illnesses contain both these "positive" and "negative" aspects in their symptomatology, but in the majority the former overshadow the latter. Occasionally, patients present with entirely "negative" depressive symptomatology. The milder forms include those cases who, without appearing depressed or admitting to depression, are considered to be suffering from a depressive state. Their complaints are usually those of a "lack of" something—"lack of life", "lack of energy", "lack of feeling", etc. When the condition is more severe the marked change in the affective state consequent upon the lack of capacity for emotional response may be formulated in various ways. Sometimes patients may describe themselves as "flat", "emotionally blocked", "suffering from death of the emotions". Lewis (1934) discussing the relationship of such complaints to feelings of unreality comments:

> ". . . . it is difficult to decide how much of objective reality there is in the words or how much metaphor."

In more severe depressive states the emotional unresponsiveness, memory impairment, altered time appreciation, biological disturbances, and general state of bewilderment may result in the experience of change being ill-comprehended and expressed in depersonalization terms. That this failure of integration of changed experience occurs in some depressive cases and not in others is probably dependent on factors discussed earlier. When it does occur, the manner of its formulation is no doubt related to the quality of the changed experience, the intelligence and verbal facility, and the psychopathology of the individual. As discussed earlier, with delusional development the unreality feeling tends to recede.

Sometimes, where the depressive affect is not marked, it may be difficult to decide whether the patient really belongs to this depressive group or whether the emotional unresponsiveness is on the basis of hysterical repression of affect. However, the setting of the illness, thought content of a depressive type, consistency of the affective picture, congruity of complaint and behaviour and lack of hysterical personality will all tend to indicate the depressive basis for the condition. The distinction is an important one, for in the depressive cases the depersonalization symptoms will usually clear, along with the other depressive symptoms, following treatment with E.C.T. In the hysterical cases, treatment with E.C.T. will often clear up some of the depressive symptoms whilst leaving the depersonalization symptoms unchanged or worse.

"Tension" Depersonalization Syndrome. (See Appendix I—Case 5.)

The presence of a state of marked emotional tension, either arising acutely or chronically sustained, appears to have a direct relationship to the occurrence of depersonalization complaints in some patients. The emotional tension in such cases commonly appears to be the consequence of strong but unexpressed hostile feelings and aggressive urges. These feelings and urges are usually wholly or partially within the awareness of the patient, or if repressed, they nevertheless remain near consciousness. Precipitating environmental factors can usually be demonstrated, but the strength of the aggression aroused seems more related to factors within the individual. Depressive symptoms, affective unresponsiveness and depersonalization complaints are commonly present when the state of emotional tension is chronically sustained and not extremely marked. When the emotional tension occurs acutely or there is a sudden increase in tension already present and a threat of the underlying aggression breaking through, further depersonalization symptoms, often associated with a subjective disturbance of bodily awareness, may occur. It is this subjective disturbance of bodily awareness which is often so striking in this group of patients. There may be disturbance of appreciation of the body image, subjective feelings of unsteadiness and inability to control the limbs, subjective disturbances of sensory appreciation in various parts of the body including the viscera, and perceptual disturbances relating to the outside world.

The basis of this syndrome is not at all clear and it is probable that a variety of disorders may contribute to it.

In those cases where there is repeatedly a recognizable emotional stress immediately preceding the acute onset of affective loss, unreality feelings and disturbed bodily awareness, it is difficult to avoid a teleological approach. Sometimes the symptomatology, and especially the tendency to run an autonomous course beyond the disappearance of the stressful factor, suggest a disturbance occurring at a biological level. But whether one talks in terms of central inhibition, homeostasis or in terms of protective hysterical mechanisms is perhaps determined largely by one's predilection for a physiological or a psychological approach to mental phenomena.

In a number of patients recurrent depressions often associated with affective unresponsiveness commonly occur following periods of mounting aggressive tension. These depressions do not appear to be of the manic-depressive variety. There is usually no family history of manic-depressive illness, but sometimes a history of marked irritability or explosive temper in one of the parents or near relatives. There is usually an obvious precipitating factor and an absence of retardation, ideas of guilt, manic episodes and other features usually associated with the manic-depressive variety of depression. On the other hand, such depressions, once started, often appear to run their course for some time beyond the disappearance of the original stressful factor. It may be that emotional factors initiate some endogenous process which then proceeds autonomously for a while. Some tension depersonalization syndromes seem to be related to such conditions, some of the depersonalization symptoms arising on the basis of the affective unresponsiveness and others being more related to disturbances produced in the motor and autonomic systems by the general increase in tension.

In other cases it is possible that schizoid mechanisms may be involved. The threat of the sudden breaking through of overwhelming destructive tendencies which cannot be dealt with adequately by other psychic mechanisms may lead, in a predisposed individual, to a temporary disintegrative reaction resulting in loss of feeling and breaking up of the "body ego" into part objects.

Some of the above factors appeared to be significant in those cases falling into this group studied by the writer. All the cases in this group, however, had marked obsessional features in their personality and it seems likely that this facet of their personality was contributory to their tendency to sustained emotional tension.

Multiple Depersonalization Syndrome. (See Appendix I—Case 6.)

The depersonalization syndromes described above and the accompanying case histories illustrate relatively "pure" examples of each particular syndrome. In a large number of patients presenting with depersonalization symptoms there, however, appears to be a mixture of more than one syndrome. Thus, for example, depressive and hysterical factors, or acute emotional tension in a loosely integrated schizoid personality may appear to be associated. Some cases may be partly determined or coloured by obsessional rumination or hypochondriacal preoccupation. Indeed, it might be argued that the syndromes described above are really artificial isolates, ad hoc constructions derived by overemphasizing one facet and neglecting another. That this is not so is strongly suggested by the occurrence of what can best be described as "multiple depersonalization syndromes". These are not particularly common but their lack of adequate previous recognition appears to be due to insufficient attention having been paid to the detail of the nature and setting of the particular depersonalization symptoms. They are quite distinct from the mixed syndromes and have the following characteristics. The patient is subject to two or more depersonalization syndromes, distinct from each other in characteristics and time of occurrence. Furthermore, the precipitating factor or underlying dynamics of the attack of each separate syndrome can often be clearly distinguished.

The separate occurrence of more than one depersonalization syndrome in the same patient is a strong argument in favour of the right of each syndrome to be considered separately under the generic heading of depersonalization.

IV. Discussion

Depersonalization is a term loosely applied to various complaints made by patients in respect of certain experiences giving rise to feelings of change in relation to the self, the body, or the outside world. Common to all such feelings of change included under the heading of depersonalization is a feeling of unreality, strangeness or similar complaint indicating the foreignness or relative incomprehensibility of the experience. There are no clear-cut boundaries to such feelings of unreality or strangeness, for they merge at the one extreme with reality-interpreted feelings of change, with delusionally-interpreted feelings of change at the other, and a change towards either extreme will result in a reduction of the feelings of unreality or strangeness of the experience.

It is suggested that it is the relative failure of integration of an experience and not the experience itself which gives rise to the feeling of unreality or strangeness. As such failure of integration may originate from more than one source and as many different experiences may be affected, depersonalization complaints may have many different origins. Depersonalization types of complaint merge imperceptibly into the complaints of patients suffering from certain cerebral diseases, some forms of epilepsy, body image disturbances, toxic states, dreamy states, perplexity states, confusional and delirious states, memory disturbances, depressive unresponsiveness, hysterical dissociation, schizophrenic disintegration and so on. The term depersonalization is thus commonly applied to phenomena often aetiologically dissimilar, but related by a certain similarity of complaint. This similarity is often the result of a number of the factors discussed above, but to these must now be added the very important factor of communication. Many writers have failed to take into account the fundamental limitations of our language as a means of differentiating experiences, often dissimilar in nature, but which may be unique or ill-comprehended and communicable sometimes only in the currency of analogy and metaphor. Similar terms may thus be used to describe a variety of experiences whilst similar experiences may be described in a variety of terms. Intelligence, verbal facility, cultural background, psychopathology and medical contact will all be determining factors in the final selection of the terms actually used.

It is suggested that a number of depersonalization syndromes exist, each with a different basis, and, although superficially often similar, distinguishable by the setting in which the complaints occur. Many intermediate forms exist, having features found in more than one such syndrome, and in fact such syndromes are the result of the convenient isolation of those cases with unmixed causation. Nevertheless, the existence of multiple depersonalization syndromes in which more than one type of syndrome can, in the same patient, occur on different occasions and precipitated by different factors, provides strong grounds for the view that such syndromes are really separate and are not merely artificial isolates. The differentiation of such depersonalization syndromes (as with other syndromes in psychiatry) is of value if it leads to a greater understanding of the dynamics, the treatment and the prognosis of the complaint.

The various syndromes described above, namely, the organic, schizoid, hysterical, depressive, tension and multiple, have been so differentiated because they have appeared to the writer to be the most significant. Although further experience may later lead to modification, cases falling clearly into these groups do appear to be distinct from each other and early recognition can be of much clinical assistance.

In the organic and depressive groups the prognosis and treatment is that of the underlying central nervous system disease and depressive illness respectively. The schizoid and hysterical groups may both present with depersonalization symptoms alone in the absence of any other symptoms and for this reason may appear alike. Their distinction, however, is important, for whereas the former is based on a relatively intractable personality disorder, the latter, although therapeutically far from satisfactory, is more accessible to psychotherapy. The tension group appear to have precipitating environmental factors which are often modification and, in the writer's experience, the prognosis with abreaction or with psychotherapy is usually good. The multiple group is a mixed one and follows no clear pattern. (See Appendix II.)

V. SUMMARY

The conditions necessary for the formulation of a complaint of change in depersonalizaton terms have been examined and it has been concluded that depersonalization types of complaint arise as a result of the relative failure of integration of experience into the total organization of psychic functioning, whilst the latter remains relatively intact. Such failure of integration may affect different experiences and originate from a number of different causes. Depersonal-

ization complaints thus merge with the complaints of many other conditions which involve a change in the relation of the individual to his self, his body or the outer world. They are related often only by a loose similarity of the terms used to describe the feelings of change. Many factors contribute to the terms actually used, not the least amongst which is the fundamental limitation of our language as a means of communicating changes in experience.

It is suggested that depersonalization should be used as a generic term for a number of different syndromes which, although sometimes overlapping, are yet quite distinct.

Case histories illustrating different depersonalization syndromes are presented.

APPENDIX I

Illustrative Case Histories

Case 1. Schizoid disturbance of Identity

Miss E. H. 30.

According to the patient she had always felt apart from people and somewhat separate from events. "I was never quite in things," she said. Severe depersonalization symptoms had however only been present for a year prior to admission and followed the termination of an unfortunate love affair. These symptoms were present without relief and were associated with intermittent free-floating anxiety and depressive spells. She described her feelings as follows:

"The part of me that is there talking is like part of a machine, then it breaks down and I can't cope with others . . . In essence this is a feeling of unreality and sometimes I lie in bed and feel so unreal that I move just to see if I am . . . I seem so unreal to myself, everyone else seems to have ideas and purposes, but I do not—I'm not part of anything and so nothing seems real."

The patient's home background had been an extremely unsettled one. Her father was not married to her mother and her parents separated when she was young. Until the age of 8 she was brought up by a kindly grandmother who had little understanding of her needs. She was visited occasionally by her mother and step-father but was uncertain of her position thinking she was an adopted child. Her own father was known to her as a friend, but around the age of 14 he revealed himself to her as her real father. The subject was taboo in the family and although she tried to discuss it no one helped her. Her mother was a neurotic, self-centred woman, demanding affection from the patient, but giving little in return. The patient was always of a melancholy, retiring nature, found all human contacts extremely difficult, had wide literary and poetic interests and grew up surrounded by the nihilistic ideas of the Ouspensky movement. She was frightened of sexual matters but during adolescence developed a passionate attachment to a female friend of her mother. The latter always rebuffed her and this rejection hurt the patient considerably. She did well at school, though she had few friends. After leaving school, she travelled abroad with her mother and later did various secretarial jobs.

Three years prior to admission she began a sexual affair with a man 25 years older than herself. This man had for some time had a fatherly relationship towards her. At first the affair was a success, though always flavoured with anxiety for her. Gradually the man's sadistic character became apparent and finally, a year ago, after a visit to Paris, the affair came to a catastrophic end. From then on the patient became increasingly depressed, terrified of all social contacts and complained increasingly of depersonalization symptoms.

The patient presented as a highly intelligent cultured girl, depressed in appearance, hopeless in outlook and "terrified of everything". Her depression increased and a short course of E.C.T. brought only temporary benefit. Continuous narcosis for a week, followed by modified insulin, gradually reduced her apprehension, but her hopelessness and depersonalization symptoms remained. For the next 18 months she was given twice weekly psychotherapeutic interviews of an analytically orientated nature. However, little real progress was made for little material was produced and she was unable to approach the transference problem. She remained dependent on her therapist and, except for one or two other "safe" figures in the hospital, was filled with an all-pervading anxiety when having to make contact with others. The only feelings of hostility she would admit to were towards her mother and this was only in relation to the apprehension that the emotional demands of the latter caused. She remained in her room as much as she could, avoided all contacts and tried to occupy herself with reading poetry and foreign literature, though with little success. After a change of therapist it was decided to institute a more directive superficial type of psychotherapy designed to provide more support and reduce anxiety. To this the patient responded with increased activity and some improvement in socialization. Later, while still in hospital she took a clerical job and, on her discharge, 21 months after admission, she had already been working in a secretarial capacity for 3 months. Her depression had considerably lessened, but she was still uncertain of herself and her depersonalization symptoms remained. Over the next 18 months she remained at work, even flying to Italy for a few weeks holiday in the summer. She still, however, felt isolated and unreal, had difficulty in making social contacts and needed the support of the hospital.

Comment

In this patient the unreality feelings appear also to have evolved from a life-long feeling of detachment on the background of a schizoid personality. As a child she lacked her mother and was uncertain as to whom she should accept as her father. Her later contact with her mother was merely anxiety provoking and further emotional rejection in adolescence increased her insecurity. To the confusion over her father's identity caused by his later revealing himself was added the final trauma when her lover, a later father figure, proceeded to destroy the identity she had built around him. Unable to relate to others and with all her parental identifications removed she became increasingly depersonalized, withdrawn and overwhelmed by primitive anxiety. Only by a forceful approach which provided a safe dominant figure was it possible to reduce anxiety and restore her finally to a limited social activity and adequate working adjustment. Her underlying feelings of isolation and unreality however remained.

Case 2. Hysterical disturbance of Identity

Miss H.G. 22.

Three months prior to admission to hospital the patient had had a sudden attack in which she felt strange, "as if I didn't exist". This feeling remained, increasing in intensity and causing her distress to the extent that she eventually had to give up work. After attending as an out-patient for some time with no improvement in her symptoms it was finally decided to admit her.

The patient's father was a successful business man who had never had much contact with his daughter. The mother was an active woman fully occupied in various social pursuits. There was one sister 5 years older than the patient with whom she had always had a very close relationship. The patient's childhood and early development were uneventful. She was an average scholar, mixed little with other children and after leaving school did a commercial course, finally becoming a shorthand typist. She had been sexually enlightened by her elder sister, was shy of the opposite sex and had high moral standards. She was described as a rather serious-minded girl, conscientious and socially somewhat ill at ease. She depended much on her elder sister for making decisions and her interests and activities appeared to follow those of her sister.

On admission she presented as a shy but good-looking girl who appeared younger than her years. She did not appear particularly depressed, but had an anxious, rather bewildered manner. Describing her symptoms she said:

"Things just seem to go on, as though they are not happening to me. In fact I don't seem to be here at all. I seem different, as though something has gone. I feel changed, lacking something I used to have, as though I had no personality and was only existing."

During psychotherapy it emerged that her elder sister was for her an ideal figure on whom she had always modelled herself. Her sister was a more active and socially successful individual than she and it was apparent that the patient had derived vicarious satisfaction from the sister's successes and achievement. One day she had learnt to her astonishment and horror that her sister was going to have an illegitimate child. This was so out of keeping with her conception of her sister that she found it impossible to reconcile the new situation with her old attitudes. "It was as though my sister had gone and someone strange had come in her place," she said "and I seemed to have disappeared with my sister." And in fact it transpired that her depersonalization symptoms had first made their appearance shortly after she had heard of her sister's pregnancy.

Further discussion of her past attitudes, her dependency on and identification with her sister resulted in her becoming more relaxed and able to engage more freely in the hospital social activities. Her depersonalization symptoms gradually receded and on discharge from hospital 4 months after admission she was symptom-free.

Comment

It appeared likely that it was the remoteness of both parents that had resulted in the patient's overdependence on her elder sister. She had used the latter successfully as her model until the occurrence of the illegitimate pregnancy. The devaluation of her identification object then appeared to disintegrate her own identity with the resulting emergence of depersonalization symptoms.

Case 3. Hysterical depersonalization syndrome

Miss Z.I. 24.

In March, 1948, the patient went to stay at her fiancé's home. They had become engaged some months previously, but the patient was never satisfied that she was really in love and had made a number of half-hearted attempts to break it off. She was however persuaded by her fiancé to spend the night in bed with him although by mutual agreement, sexual intercourse did not take place. In the morning her fiancé's mother had come into the bedroom and found them together. The mother created a scene and the patient was very upset. In order to allay her distress and help her to forget the incident her fiancé offered to hypnotize her (he had had some amateur experience in this field) and the patient willingly agreed. The first two attempts were not fully successful but during the third attempt the patient made a remark about wanting to kill her fiancé, and the latter then attempted to bring her round. However, the patient complained that she could no longer see things clearly. "Things seemed unreal, as though there was something shutting me off from reality, as though I could not look at a thing and grasp it or see it as a whole." She complained that her body felt light as though she was walking on air, she had difficulty in grasping things, she felt dead inside and, when her fiancé kissed her, she felt nothing. Further attempts to rouse her were unsuccessful and her symptoms continued unchanged. She was finally admitted to hospital 5 months after the onset of her symptoms.

The patient's father was an anxious, somewhat morose schoolmaster who had always been a somewhat distant figure. She was more attached to her mother, a restless, over-active woman who ran a prep. school. There was a sister five years the patient's senior and with whom she did not have very close contact. The home had not been a very happy one, being frequently disturbed by parental quarrels and having scholastic standards which the patient felt were always too high for her. As a child she was shy and rather retiring. She did well at school, took Higher Certificate and then went to University to start training as a medical student. She found difficulty with the preclinical subjects, became discouraged, gave up almost immediately and quickly changed to English studies. After two years she took an Arts degree and was very disappointed at only obtaining 3rd class honours, Subsequently in 1945 she joined the A.T.S., became a Sgt. librarian and was demobbed in 1947. She worked for a short times as an assistant nurse in a nearby private mental home and shortly after the onset of her present illness she began a course of secretarial training, but soon had to abandon this. Sexually she had never been well informed, had always been fearful of the subject and her fiancé was the first member of the opposite sex with whom she had ever had any close contact. She had always regarded herself as unattractive, felt inferior in relation to others, and was timid and oversensitive in public. She had few social outlets, was interested in literature of an introspective type and was given to private day-dreaming. In outlook she was somewhat anxious and pessimistic and tended to mild depressions under difficulties.

On admission, she presented as a shy, anxious and mildly depressed girl of immature appearance. At interview she was reticent and hestitant, but if required would write pages of introspective description of her past history and present feelings. Her talk largely centred around her recent experiences and her symptoms. Her complaints centred on her emotional unresponsiveness, the feeling of unreality of the outside world and the dulling of visual, auditory, tactile and visceral impressions. She felt that her illness was protective and expressed herself as follows:

"Before the hypnosis I was feeling very unhappy. Afterwards it was as though the unhappiness I had been feeling had been shelved, as though I was protected from it. I think I felt dead inside. I seemed to do things automatically—I didn't have to do anything about it. I lost the power to feel pain but also to feel happiness. I am in a mid-state all the time. Underneath I know the unhappiness is still there. I believe that the sort of unhappiness I escaped from is mainly guilt, but I also know that Reg got on my nerves." She stated that in hospital things seemed more real but her symptoms increased as soon as she went outside. "In my bad moments here I would prefer the former unhappiness—in my good moments I'd prefer this. On the whole I'd prefer the former unhappiness as this is ruining my health and looks . . For about two days after my hypnotism I think I used it at a conscious level. I felt it was a good thing. I felt unhappy no longer. I think I let myself go and now I can't get back."

Despite her measure of "insight", repeated psychotherapeutic approaches involving elaboration of childhood and present phantasies, the patient continued to intellectualize her difficulties and her depersonalization symptoms remained unaltered. On the ward and in the various hospital social activities she however manifested little anxiety and appeared fairly cheerful. On discharge, 6 months later, the picture was unchanged and she left to take a post at a library. She later started an analysis but became too disturbed to continue, finally returning home. Later she started treatment again with another analyst and 3 years after discharge from hospital she reported that she was still continuing with this analysis but her former symptoms were still present.

Comment

In this patient the protective nature of her symptoms is clearly formulated by her. Her relative freedom from anxiety and distress in hospital indicated the success with which she had managed to dissociate the feelings associated with an unacceptable memory and contrasted with her prolific written accounts of her sufferings. It was this intellectualization of her problems that made it so impossible to obtain from her any free emotional expression and despite numerous attempts by various therapists she retained this defence intact.

Case 4. Depressive depersonalization syndrome

Mrs. N.P. 42.

During the 18 months prior to admission the patient had been becoming increasingly depressed. She was worried over her work and her marriage was unsatisfactory. She began to feel "automatic". Everything seemed "detached and apart" and her brain seemed to be "bursting up". Two weeks before admission she had made an unsuccessful suicide attempt by walking on railway lines. Following this the "depression seemed to go but I felt empty and dead inside". Superficially she was able to make a social effort and appeared brighter, "but my brain seemed scooped out and it seemed that everything was going from me—all ideas and everything else."

The patient's father was unknown and her mother, a flighty children's nurse, died suddenly when the patient was 2. Her foster parents were strict and domineering and she regarded her childhood as an unhappy one. As a child she was jealous of her foster brother, had frequent temper tantrums and a number of anxiety symptoms. She was an average scholar, but made few friends at school. Later she did a number of clerical jobs, followed by various domestic posts, and for the last 6½ years had been a shop assistant. From the age of 15 onwards she had had many boy friends. After the age of 24 she became sexually promiscuous. She married at the age of 29 but the marriage was an unhappy one. The husband was an unstable labourer given to sexual exhibitionism. The patient was always frigid with him and there were frequent quarrels between them. The patient had always been a shy, self-conscious, unsociable individual, oversensitive to criticism. She was easily prone to worry and subject to mood swings. When well she was energetic, "athletic" and a keen reader. She had been an in-patient at the age of 20 at the Maudsley Hospital following a suicidal attempt preceded by a 10 months depression. She was discharged "relieved" after 7 months. She never made a full recovery and 2 years later was readmitted with a recurrence of suicidal feelings. She was discharged after 7 months with a diagnosis of "recurrent depression in a psychopathic personality". Her symptoms during both these admissions were essentially similar to those in the present admission.

The patient presented as a rather untidy looking woman with a somewhat expressionless face. She was tense, was somewhat aggressive in manner, answered questions slowly and appeared a little bewildered. She discussed her suicidal thoughts and ideas of hopelessness with no change of expression and little show of feeling, She was preoccupied with her feelings of change, especially with feelings related to her head and she described these repeatedly in vivid terms:

"Things look the same and my body is all right, it is the brain that is the trouble. I'm conscious of myself but I'm a vacuum. When I went out recently I felt like a bag of skins with a vacuum inside . . . There's a jammed up feeling in my head—it feels split in two as if my brain was peeling off. Nothing comes into my head. There's an emptiness there . . . I don't seem to think unless anyone says anything to me . . . I don't respond to anything, everything seems to have gone, it started going some time ago. Now I've no feelings for anyone. Nothing would affect me. I can't get disturbed or upset over things though I worry and can't see any future. Things just go on and I'm not a part of them. I know things have happened, but I can't picture things vividly or recall them properly."

Her condition continued unchanged for some weeks and a course of E.C.T. was begun. She was given a total of 9 treatments and made a complete recovery. On discharge 14 weeks after admission she was cheerful and symptom-free.

Three years later the patient attended the out-patient department again. She had recently become depressed, was feeling suicidal and had had a return of the feeling of "things breaking up inside my head". She was admitted to a mental hospital as a voluntary patient.

Comment

The central feature in this woman's complaints appeared to be her depression and widespread loss of affective responsiveness. This she referred to her head ("a jammed up feeling"), her brain ("as if my brain was peeling off") and elaborated it in various other "as if" terms.

Case 5. Tension depersonalization syndrome

Mr. E.U. 26.

The patient first experienced attacks of feeling "strange" 5 years before admission. He was at that time a Captain in charge of a Commando Unit in North Africa, and during a talk to his Unit he suddenly felt as though he was talking like an automaton. The attack lasted a few minutes, but took a few hours to disappear completely. He recalled that he was feeling tense and angry at the time as a result of recent disputes amongst his fellow officers. Subsequently he experienced two or three attacks a week, lasting a few hours, often sudden in onset, and always preceded by a period of mounting emotional tension. Initially, he only suffered a feeling of lifelessness and automatic-like activity, but later disturbances of bodily experience appeared. He put his symptoms down to the stress of military life, but after leaving the Services and beginning a university course his symptoms further increased in duration and severity. He had increasing difficulties with his studies, became progressively more depressed and was finally admitted to hospital.

The patient's father was a successful barrister, a driving and rather rigid individual, fond of his children but demanding very high standards from them. The mother was overanxious, rather possessive and emotionally over-demanding from her children. There were two older brothers, both of whom were intellectually brighter than the patient. The home was a comfortable and superficially fairly happy one. Both parents suffered from severe migraine. The patient's birth was a forceps one on account of protracted labour. His subsequent childhood development was uneventful and he was a cheerful, active boy until the age of 10. At that time he had an obscure febrile illness following which he became less active, more solitary and rather over-sensitive. His school career was not up to the family standards, and he failed to matriculate. He was undergoing private coaching at the outbreak of the war and he broke this off to join the army. He was described as an over-conscientious and rather oversensitive individual, even-tempered, rather solitary, idealistic in outlook and serious in his interests. He liked the company of the opposite sex, but was shy of making any approaches.

The patient was a tall, rather awkward individual, ill at ease initially but gradually able to relax. He appeared moderately depressed but his depression cleared in the first week after admission to hospital. His attacks of depersonalization continued however. They varied in severity but a fully developed attack had the following characteristics:

There was marked loss of affective response for external events accompanied by a feeling of increased irritability and a tendency to rumination. Things looked dull, flat and lifeless. He claimed that his experience of bladder and rectal fullness seemed diminished and other sensations such as taste, tickle and pain were reduced. There was usually a singing sensation in his head. His hands and feet felt detached, as though they did not belong to him and sometimes seemed to disappear altogether. He felt clumsy in his movements and unsteady at times. His mouth seemed like "an empty cavern" and when he chewed it sometimes felt as though he was biting powdered glass. Of himself he said, "I seem to have no personality, as if I had no background, no future and no ties at all with anyone or anything. I feel non-existent as a personality—like a vacuum."

During psychotherapy it emerged that his illness at the age of 10 had resulted in an overdependence on his mother and a need to control his usual active and somewhat aggressive tendencies. His scholastic failure and fear of rejection had further resulted in a need to control any aggressive manifestations. His underlying aggression was, however, brought to the surface during his army career by frequent disputes with his fellow officers. These disputes usually centred around his excessive zeal and his tendency to take unnecessary risks. The connection between the onset of his attacks and preceding feelings of hostility was very apparent and the patient was soon able to relate his present attacks to stresses in the immediate environment. During psychotherapy his disturbed parental attitudes, sexual conflicts and perfectionist trends were worked through. His depersonalization attacks which had been occurring weekly and lasting a few days, gradually became less severe and less frequent. On discharge four months after admission his attacks were infrequent and fleeting.

A follow-up enquiry a year after discharge revealed him to have remained well and to be continuing with his studies.

Comment

This patient's attacks of affective unresponsiveness and disturbance of bodily experience proved to be related to preceding periods of emotional tension with underlying feelings of hostility. Resolution of his emotional conflicts led to a reduction and later a cessation of his attacks.

The suddenness of onset and severity of the subjective symptoms were suggestive of a disturbance partly at a physiological level. The forceps delivery may have caused a birth injury, the obscure febrile illness at 10 may have been an encephalitis. On the other hand, vasomotor factors might have been important. Both parents suffered from severe migraine and although the patient himself was not a migraine sufferer he commented that under stress he frequently blanched for a long time. However, this must remain speculative.

Case 6. Multiple depersonalization syndrome

Mr. M.Q. 30.

In the August of 1945, about one month after his second child had been born, the patient began to have feelings of tension and anxiety and a sensation of choking. Anxiety attacks continued daily until early in 1946 when attacks of unreality began and partially took their place. These attacks always occurred when going out but other attacks of unreality also occurred at other times which at first appeared inexplicable. The patient became increasingly fearful of going out alone for fear that he might suddenly collapse and die and by the time he attended the out-patient department of the Maudsley Hospital in November, 1946 he was unable to go out more than a hundred yards or so on his own.

The patient's childhood had been an unhappy one. His father used to drink regularly at week-ends and often stayed away from home or threatened to leave. There were frequent financial crises and quarrels between the parents. The patient was nevertheless very attached to his father, though later he developed an increasing sympathy for his mother. There were two younger sisters and a younger brother, all of whom were of an anxious disposition. During childhood the patient had manifested much jealousy towards his younger brother.

As a child he was anxious, lacked confidence in public and stammered easily. He did well at school but was timid with other boys. After leaving school he worked as a toolmaker's assistant and then later became a clerk in a firm of accountants. He did well in this firm and steadily improved his position. Sexually he had been ill-informed, masturbated with guilt and was shy of the opposite sex. He married at 21 a girl of his own age. Sexual adjustment took some time to achieve and was never fully complete, as his wife was variably frigid. The marriage was a fairly happy one, though temperamentally the pair were not very suited. There were 2 children. The patient was described as a shy, overconscientious individual, easily worried under stress. He easily reacted to frustration with anger though he had difficulty in expressing these feelings, suffering often as a result from mounting tension and intermittent moods of depression. He suffered from periodic headaches and was subject to Raynaud's syndrome at times

The patient presented as a tense asthenic individual anxious in appearance and tending to stammer badly. He appeared intelligent, was anxious for help and described his various symptoms freely. Close enquiry revealed that his unreality feelings appeared to be of three different varieties.

Attacks of derealization type would occur when he was alone outside and feeling anxious, particularly when far from home. These he described as follows:

"I feel isolated from the world, as though it is not interested in me at all. Nothing seems to make an impression on my brain. It is as though I was looking through the world through frosted glass. Voices sound different and distant."

Attacks of a different nature would also occur either after a sudden shock or after having to bottle up considerable anger. These would always begin with a gradual blocking up of his nasal passages making it difficult for him to breathe through his nose and giving rise to a feeling of fullness in his head. Then would follow various feelings of bodily change which he described as follows:

"My hands do not seem to be mine, sometimes I have pins and needles in them. My eyes feel as if they were full up with sand and feel as if they were trying to diverge. The top part of my head often seems to disappear. I often have a feeling of swaying to and fro or of spinning round very slowly in a clockwise direction. I feel as if I have been drugged, my face often becomes hot and flushed and I stammer very badly."

Often at night just before retiring to bed, particularly after a tiring day he would have feelings of complete bodily absence described as follows:

"I feel as though I am not here at all, my mind appears to be here, but the rest of me seems to have gone. I have to touch things to make sure I am still here."

During the course of psychotherapy as an out-patient the following facts emerged. Prior to the birth of his last child in July, 1945 he had been worrying about his wife's health and what would happen to his family if he was killed in the bombing. Around that time his family moved into a larger house and his wife had increasing difficulty in dealing with the children and new household. He himself became increasingly irritable but realizing his wife's difficulties tended more and more to bottle up his feelings and contained his aggressive urges. His wife became more frigid and he began to be increasingly aware that for a long time he had been indulging in an extensive life of sexual phantasy. He felt very guilty about this but owing to his lack of sexual outlet it gained an increasing hold upon him. His anxieties in this respect were further added to by the fact that on a number of occasions when out he had been solicited by women. He began to fear that he might yield to sexual temptation, made further attempts to give up his sexual phantasies, but was unsuccessful.

With increasing understanding of the nature of his difficulties and reduction in his feelings of guilt, he was able to venture from home with lessening anxiety and reduction in the frequency of his derealization attacks. During psychotherapy he was able to discharge much aggressive feeling and his attacks of bodily unreality became less severe. No attempt was made to deal with deeper material or effect a widespread personality change but over the next 3 years or so he was seen in a supportive relationship at increasing intervals. During this period, though subject from time to time to anxiety symptoms, he gradually gained more confidence and lost all his depersonalization symptoms. He started studying for his accountancy exams and 5 years after being first seen he had passed his final exams, was a fully qualified accountant and about to become a partner in his firm.

Comment

In this case there were three different depersonalization syndromes, distinct in their phenomena and precipitation. One was of a derealization type and appeared to serve as a defence against sexual anxiety and gradually disappeared as the latter was resolved. Another was associated with feelings of bodily unreality and changed function, was related to the inhibition of strong emotion and disappeared when free expression of aggressive feelings was encouraged. It corresponded to what has been described above as the acute tension depersonalization syndrome. A third type was associated with a state of relaxation corresponding to what is quite a common phenomenon in normal people.

APPENDIX II

Analysis of 54 Psychiatric Patients Manifesting Depersonalization Symptoms, seen Consecutively

Syndrome	Total	Recovered	Improved	Unimproved
*Schizoid disturbance of identity ..	5	0	0	5 (100%)
Hysterical disturbance of identity ..	4	3 (75%)	0	1 (25%)
Other hysterical depersonalization syndromes	10	2 (20%)	3 (30%)	5 (50%)
Depressive depersonalization syndrome	8	6 (75%)	1 (12·5%)	1 (12·5%)
Tension depersonalization syndrome ..	5	5 (100%)	0	0
Multiple depersonalization syndrome	4	2 (50%)	1 (25%)	1 (25%)
Mixed depersonalization syndrome ..	18	5 (27·7%)	6 (33·3%)	7 (39%)

* Does not include cases manifesting depersonalization symptoms and later progressing to a frank schizophrenic illness.

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PSYCHOPATHIC PERSONALITY AND SOCIAL RESPONSIBILITY*

By

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SINCE there is little general agreement either on the nature of psychopathic personalities or on how to deal with the problems within organized society which their behaviour creates, we are justified in any attempt to present these problems in a new light and to examine the impact of recent work upon them. There is, moreover, an urgent need to clarify our own ideas on the subject in the hope that we can present them in practical form to those social agencies who so frequently meet with the psychopath as a perplexing hindrance to the smooth working of the State's affairs, whether in the schools, the courts, in industry, in the services or in any part of our national life in which planned co-operation is desirable. The psychopathic misfit for whom the increasing complexity of society has allowed no place, and for whom as yet science has found no certain remedy, often manifests his disability at least as much in a disorder of citizenship as in one of personal adjustment, and in no field of our work are we so constantly reminded that it is impossible to consider the patient in isolation from the milieu in which he must live. While the brain is a part, and the controlling, communicating part of the somatic mechanism, the concept of the mind of an individual is not so confined. In that the individual is a member of a group, part of his mental life belongs to that group and plays a part in forming its characteristics. In favourable circumstances this contribution is repaid by the guidance and support which membership of a group can provide. When an individual is so constituted that he is without the inward mechanisms necessary for the efficient working of this process of interchange, the result may be unhappiness for him or loss of harmony in the group. Thus, although it is to medical science that the appeal for an explanation or a remedy is most often made, the psychopathic personality is a responsibility which we must always share with the social sciences. Since the defect of personality is usually a constitutional one, the problems it creates are as likely to be solved by manipulation of the environment of the psychopath than by any effort to change his spots. This is not to say that the leopard in our kraal is not to be rendered more tame, or that he cannot be afforded the help of psychotherapeutic cosmetics, so long as the therapist in his preoccupation with the spots does not forget the savage heart that lies beneath them.

The size and complexity of the human brain is accompanied by wide variations in structural detail. Not only do the inherited potentialities of each organ of mind vary between the widest limits within the species, but the process of development from conception to full maturity is fraught with innumerable opportunities for minor failure which, while not lethal to the organism or productive of gross developmental anomalies, may slow down or stop the development of some specialized function in a way which comes to light only when that part of the apparatus is called into use. Thus, while all men may be equal in the theological or social abstract, they are necessarily disparate in respect of the different qualities of personality (or some are at any rate more equal than others) and while all have an equal right as citizens to the advantages of living in a community and to share in its work, the mental apparatus available for this participation varies in efficiency. The standard of physical health or of intelligence necessary for social efficiency is such that the majority can attain it, and if they cannot, allowance can be made, as it is for the disabled or for the mentally defective. Certain other qualities necessary for citizenship are, however, less easy to assess and even the total lack of them may be difficult to ascertain. For this reason we are often at a loss when we try to make allowance for them within the present framework.

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* The Opening Address at a Symposium on Psychopathic Personality held at the Royal Society of Medicine on 12 January, 1954.

The following table shows some groups of non-intellectual disability often found in association with inability to fit smoothly into the social scheme. It will serve for the moment as a rough guide to the features found in different types of psychopath.

TABLE I

Some Types of Defect found in Psychopathic Personality

1. *Emotional responses beyond the normal range*
   Lack of control of immediate emotional responses or of swings of mood. Tendency to transfer emotional responses to socially inappropriate objects.
2. *Cognitive deficiencies*
   Inability, in restricted fields, to profit from experience. Lack of appreciation of shades of meaning or of the remote effects of behaviour, inconsistent with the general level of intellect. Inability to identify with the feelings of others. Inability to comprehend and learn the advantages of giving, or of postponing immediate gain. Unusual forms of mental imagery and imagination. Difficulty in distinguishing phantasy from reality, or project from accomplishment. Inability to think in other than concrete terms.
3. *Lack of uniformity or constancy in thought or behaviour*
   Lack of capacity for attention. Lack of motor initiative and drive. Concentration of drive into a single channel or dispersion over too many fields. Uneven mental output with unpredictable impulses and periods of aggression.

Defects such as these are rarely complete, but by comparison with the psychopath's efficiency in other fields, such as intelligence, the deficiencies are relative. There is an uneven maturity in the different aspects of personality. It renders difficult the integration of the different aspects of the individual's personality so that he is apt to adapt at a different level in respect of each quality. The painter, for instance who adapts at one level of artistic integrity and at a very different level of sexual or financial morality is a psychopath if he or others suffer as a result. On the other hand, the mental defective who also lacks financial morality is not a psychopath, because his adaptation in this respect is consistent with his expected efficiency in other spheres. This disparity of the different qualities of personality is very characteristic of the psychopath.

Behaviour which is psychopathic in one social group and in one age may be acceptable and even laudable in another. Mercier (1921) pointed out that matricide has been so frowned upon in European communities that it has been practically eliminated and that when it does occur it is nearly always the act of an insane or grossly psychopathic person. There are primitive communities, however, in which matricide is the accepted method of dealing with the female past reproductive or working life. This does not mean that a man who slays his mother would be psychopathic in one community and not in another, for the characteristic of the psychopath lies not in the behaviour in which his abnormality is expressed, but in the abnormality itself, the inability to grow into the accepted pattern of the group into which he happens to be born. Stress has been laid on the cognitive aspects of psychopathy including controlling or "feed-back" mechanisms. It is characteristic of most types of psychopath that they are incapable of a consistent insight into their attitude towards their fellows. It is because they cannot efficiently observe their own progress in relation to other people that they cannot keep in step. Just as mechanisms exist within the brain by which it can regulate its own metabolic environment, so practically every manifestation of its activity is subject to a form of control by which the details of any act are observed and checked for consistency with the general purpose or goal. A person, for instance, who is unable to hear his own speech has great difficulty in speaking normally. If there is a disturbance of the central apparatus by which are received and integrated the different sensory signals from the mechanism of phonation, the patient may speak nonsense without being aware of the fact. Some individuals, because of an inborn variation of mechanism of this kind, are unable to follow the normal method by which children are taught to speak and to read, and this is seen in its extreme form in congenital word-blindness where although the intellectual potential of the child is normal he is seriously hampered in developing his communications with the world of men. Unless accurate diagnosis is made the child is quite unaware of the reason. He is thus likely to rationalize, to invent his own reasons and to turn against the society with which he cannot maintain normal contact. This has its parallel in some forms of psychopathy.

There are some kinds of human, but not necessarily individual, activity which are planned at an entirely conscious level. In planning the ascent of Mount Everest, for instance, the group concerned considered and rejected as inexpedient many ideas and plans, while deciding to use others which were more likely to succeed in the conditions known to be present on the mountain. Here the monitoring process is being extended to the future and is dependent on what I have called elsewhere *conative awareness* (Kennedy, 1950). Between the simple kinaesthetically-monitored motor act, the complex mechansim of speech and the plan made at a conscious level there is, in individual conative thought, a continuum of processes of a monitoring kind. At one end the individual is fully aware, in the middle the process is automatic unless his attention is directed to it, and at the other end it is wholly unconscious. Foresight is simply this process, projected at all levels into the future.

It may thus very reasonably be supposed that when any kind of action is contemplated, a mechanism comes into play by which it is monitored not only for immediate expediency, but for compatibility with the general attitudes and trends of the individual as installed in the great reference library of the brain, laid down in the formative years of life. Training and early experience thus lay down the codes and attitudes by which later conduct may be guided, and in this lies the importance of infantile experience and of the first contacts made with parents, family group and finally society itself. This *personal codification* of the principles learned from early experience has, as the psychoanalysts have shown, an immense determining influence on later conduct. If, however, the mechanism for monitoring or reality-testing is deficient or undeveloped, the individual has a greatly diminished chance of keeping in step and is dependent on the sort of crude defence mechanisms and compensations which are a feature of adaptation in the psychopath and in the severely neurotic.

On this basis, social inadequacy may be due:

1. To disorders of *personal codification* in the course of development and maturation.
2. To disorders of the nervous mechanisms of reference and in the monitoring of behaviour.
3. To disorders of the effector mechanisms and of emotional control.
4. To the effects of compensatory mechanisms and of the conflicts arising from the dissimilarity of the patient's attitude with the range of attitudes which are favourable to the integrity of the group, and his consequent rejection or retreat.

So far I have discussed the negative aspects of psychopathy and have presented it mainly as a state of defect, whether inborn or due to failure of post-natal development or maturation. This view at least affords us the hope that in some cases we will eventually be able to classify the psychopath by naming what is lacking rather than by regarding him as a positive psychiatric entity with the symptoms and signs either of an active disease process or of psychodynamically-determined behaviour trends. We should then know better how to support the weaker parts of the personality structure, just as the word-blind child if accurately diagnosed, can by some indirect approach such as stereognostic reading, be brought to full intellectual parity with other children of his age. The presenting symptoms of the social illness which we diagnose as psychopathic personality, as it is referred to us, are mainly caused by the reaction of the brain or the mind to its defect. The same thing is seen in other partial defects. The child with serious mathematical disability for instance, by the time it reaches skilled aid may be presenting alarming evidence of hatred of the school and all its works, of which failure to succeed at mathematics may well be taken for a symptom instead of the cause.

If psychopathy is to be regarded as a defect-state it would be expected that the psychopath in the course of his maturation would either become aware of the ways in which he differs from others or would develop compensatory mental mechanisms to shield himself from this knowledge. In my view the life-history of the psychopath often reveals evidence of ill-formulated feelings of inferiority, and compensation for these has much to do with the formation of the picture he presents to the world. As an illustration of this I would quote one of the reasons why the churches have much to fear from the psychopath in their ranks. The man who becomes dimly aware that his sense of moral values is not such that he can keep his behaviour within permissible bounds will sometimes seek to ensure his safety and conformity by binding himself to a course of conduct more strict than the average man, and by undertaking to teach his fellows the true path. He may feel more at home in a field where ecstatic experience may be permissible, even desirable. For this reason, too, the explosive dysrhythmic, his emotions blown hither and thither by the storms that disrupt his nervous activity, may also seek comfort and satisfaction in religious experience. It is in ways like these that the underlying defect is so often covered up by the compensatory mental mechanisms developed in the attempt to adapt to an unlike world.

It has often been noted that many psychopaths seem to settle down by middle age and to fit in much better with their fellows. Where psychopathic behaviour is due to positive factors such as endocrine determinations of exceptional strength, this might be expected as the fires of instinct die down. It is possible also that where the psychopathy has a negative or defect cause, late development may occur just as it does in the field of intellect.

It is, I think, necessary to emphasize the very primitive state of our knowledge in this field. The quest for underlying principles is made more interesting, however, by the fact that the initial stage of clinical description essential to the throwing of light on any problem has been so thoroughly and so well accomplished. Not only have we descriptions by men of the calibre of Mercier (1899) and Henderson (1939) in our own profession, but the description of psychopathy and its social effects has produced some of the finest literature. In the novel and the play, which are dependent on the interrelation of differing personalities, the contribution of writers as widely differing in time and style as Euripides, Dostoievsky, Ibsen and Dickens are equalled only by the glimpses of new worlds of ideas which we have been given by the gifted psychopaths themselves. In fact, if we are to achieve any way of conveying telegraphically the features of any given psychopath without reference to unproved psychopathological theory, we can probably do worse than to compare them with the characters that have lived in fiction, in history and in the criminal courts. Thus we might call a patient, for convenience, a suburban Medea, a small-town Nero, a backstreet Don Juan, a medical Macchiavelli, a potential Landru, or a would be Casanova or Helen of Troy. The psychopath, in terms of behaviour, has perhaps been described enough, and we are now at the interesting state of testing hypotheses in the hope that they will receive enough confirmation to achieve respectability as unifying theories.

Before discussing this stage it will perhaps be well to clarify our thought by referring briefly to some of the fallacies which may be obscuring our view of the true nature of psychopathy. One of these relates to theories of evolution from the primitive or the infantile. Because in some respects a psychopathic individual behaves like a savage, to call him a "savage in broadcloth" may be a satisfying description, but is not one upon which aetiological conclusions can be based. The man is not a savage and would certainly be rejected by savages as a misfit. Similarly, the claim that in the field of emotion a psychopath is a child because he has failed to follow the usual ontogenic path of emotional development is only permissible if one regards a mental defective as fixated, say, at the age of three. It is a method of describing his relative mental powers, but it gives us no help in regard to qualities other than intellect and it is based on an erroneous concept of mental defect as a simple *uniform* arrest of development. The other defect in our classification of the psychopath is that he is often described by his resemblance to psychiatric disease entities, usually of the kind in which the describer is interested. In fact, some writers such as Brill have gone so far as to regard psychopathy as virtually identical with prepsychosis, or to describe the psychopathies as variants of neurosis in terms of the constructs of theoretical psychopathology. I think this danger is best illustrated by an analogy. When arriving at a London railway terminus I often have my shoes cleaned by a man with whom I have discussed the classification of his clients. So far as I can make out, this classification is a descriptive one based on factors such as quality of shoes and socks, care of shoes and trousers, degree of haste and fidgetiness, interest in the work being done, conversation, whether needing replies, and regularity of custom. This man is able to deduce a good deal about his clients from the appearances at that end of their persons that he has scrutinized with professional skill. His interest in the rest is remarkably limited. His main method of testing his conclusions is by reference to the size of the tip, but having concluded, say, that his client has lived abroad or has a manservant, he has little interest in confirming this by direct enquiry or by seeking for supporting evidence. This would have been the method of science, and in neglecting it he is content to remain in his happy shoe-oriented world.

The psychopath can be classified for practical purposes from many points of view, legal, clinical, or administrative, and one would not wish to dispute the classifications already proposed. In order to illustrate further possibilities, however, two classifications of a fundamental kind are given in this paper, one in terms of the qualities that he lacks (Table I) and the other in terms of his social efficiency (Table II), i.e. without reference to his personal adjustment or unhappiness. The most practicable way of determining what kind of psychopathy is present is often by a process of progressive restriction, i.e. by reviewing the things that the patient is not. The following list of objective features common to large groups of psychopaths should assist a diagnosis by increasing probability. Such a diagnosis is necessary, of course, if we wish to predict what the psychopath will do next, and diagnosis is as necessary as in any other kind of disability:

TABLE II

Classification of Psychopathy in Terms of Social Efficiency

Satisfactory Adjustment	Personally unhappy but capable of original thought as poets, inventors, supporters of strange causes, zealots, occultists, hypochondriacs. Those with single interests who, apart from their enthusiasm, are normal in that they contribute as much or more than they receive from society. Includes individuals with a hypertrophied social conscience which causes personal unhappiness.
Less Well Adjusted	Aggressives, malcontents, dreamers, sensualists, drifters, informers, neurosis-prone individuals, pathological liars, latent inverts, some recidivists.
Socially Maladjusted	Addicts, alcoholics, parasitic and dependent persons, negative individuals without drive, persons almost unemployable, white-collar swindlers and business opportunists, prostitutes, spivs and others who lower the morale of the group.
Antisocial	Moral-oligophrenics, antisocial perverts, anarchists, vengeful paranoids, the angry and explosively violent who constantly offend against law.

> Their behaviour mystifies others who find it difficult to account for it in terms of their own motives. Their solution of daily problems differs from that of the average man of comparable intellect, yet they are lacking in insight as to the ways in which they differ from their fellows.
>
> Their output is irregular and unpredictable and their response to alcohol and drugs is unusual. Their emotional responses are at the extreme of the normal, they cannot estimate their appropriateness, or respond consistently to the same situations at different times.
>
> Owing to their condition they attempt to meet stress in inefficient ways and are in consequence vulnerable to neurosis. They have difficulty in keeping their attention on the immediate needs of adaptation to daily life. On the other hand they may be preoccupied with the present alone and incapable of considering the future. They are often egocentric and find no reason for any other attitude.
>
> They are sometimes criminal and may share with the criminal the weakness for accepting the immediate gain with restricted foresight for later consequences. They are not insane, but cause more unhappiness and disharmony in others than the insane. This unhappiness they are unable to appreciate.

Out of place in this world, they may seek to reform it by new politics or religions or to leave it by suicide.

The above qualities and deficiencies are relative and are yet consistent with high intellectual attainment and with useful contribution to the group or to the advance of civilization in general.

After description, empirical classification and tentative hypothesis, the next step in the scientific approach to psychopathic personality is the testing of hypotheses. If psychopathy is due to certain defects, and we suspect what these defects are, can we produce them artificially, can we make a psychopath? Attention has been drawn (Jefferson, Kennedy, Ritchie, Zangwill, 1950) to two experiments which nature and surgery have carried out for us. The first of these is the epidemic of Encephalitis Lethargica, which in damaging the central regions of the brain in a large, almost random, group of subjects during the ten-year period 1916-1926, in different types of community and at different stages of the development of their central nervous system from birth to maturity, has provided what Adolf Meyer would have called an ideal "experiment of nature". The second experiment has been carried out for us by Moniz and his successors who have produced fairly circumscribed destruction of brain-tissue in the frontal regions.

My own interest in these experiments has been in connection with the so-called "moral sense" which appears from study of my own material to be dependent on an awareness of the appropriateness of a contemplated course of conduct in relation to patterns of behaviour installed in the brain. These patterns are the resultant of the post-natal development of the social instinct and the effects of experience upon it. The lack of foresight found in the brain-damaged appears to be due to a general lack of awareness in the conative field. This accounts for some of the extraordinary unforesightful acts which are sometimes found in the presence of a normal intellect both in severe moral defectives and in the victims of encephalitis lethargica. Acts such as picking up a hot iron or confidently hanging from a string which cannot possibly support a person's weight appear to occur where the disease has been incident at the stage when a child is learning to avoid danger. In the same way socially unforesightful acts occur in those where it has been incident between 8 and 20 when the sense of social responsibility is undergoing rapid development. The man of normal test-intelligence who kills a man for his new suit and leaves his old one at the scene of the crime, is a striking example of this sort of defect. The type of moral defect seen in the post-encephalitic and in the patient with gross character change after brain-damage are very different, and it is possible to isolate the factors they have in common and in which they differ. They serve to illustrate the fact that it is possible by means of comparatively small structural damage, or by interfering at critical phases of development, to produce an individual who *lacks the physical means of being morally aware.*

Between conception and maturity the opportunities for minor damage to the nervous system are many, and for every failure that can produce a mental defective or a cripple there must be some that produce variations which are not so obvious. Intrauterine anoxia, intrauterine encephalitis and toxaemia, the trauma of birth with its venous haemorrhage and white asphyxia are obvious causes, while the importance of kernicterus due to Rhesus incompatibility is now being realized. If the damage done is insufficient to produce changes appreciable by the relatively crude methods of neurological examinations or its psychometric extensions, it may still be sufficient to produce defects which will come to light only when the affected mechanism is tested under the stress of adolescence. It is a chilling thought that the more medical science is able to save life, the greater the prospect of minor structural damage in the survivor. We are now able successfully to rear many premature babies weighing less than two pounds and we know already that some of these have in other respects an unequal chance in later life. We operate on hydrocephalic infants where much damage has already been done, we treat tuberculous meningitis successfully with the aid of drugs which themselves do irreparable damage to nervous tissue. It is often said that a case of accidental head injury which reaches hospital alive will usually survive even in spite of much loss of tissue, a field in which subsequent character-change is already well recognized. It is not that we should not welcome these advances, but the type of defect which results needs careful study so that we can allow for it in the process of social rehabilitation. Two new possibilities to which attention has been recently directed are the effects of cerebral anoxia after operations on the heart, and the cerebral effects of prolonged anaesthesia with controlled hypotension.

If we are to follow out the comparison of the aetiology of psychopathy with that of defect, we must not ignore the influence of heredity. Most psychiatrists of experience can remember instances where an unusual psychopathic trait has been seen in more than one member of a family, and East and Hubert (1939), for instance, noted the tendency for sexual perversion to be inherited, provided that one took the general tendency to perversion as the unitary trait and not its actual form. Recent work on twins by Slater and Shields (1953) and Shields (1954) strongly suggests that character-traits, including abnormal ones, show evidence of inheritance to a greater degree than most diagnostic entities in psychosis and neurosis. Similar work on behaviour disorder in children (Rosanoff *et al.*, 1934), criminals (Kranz, 1936) and homosexuals (Kallmann, 1952) strongly supports this view. It may be that we should review with a less critical eye the work of those such as Reid (1901), who showed, without carefully controlled study it is true, that alcoholism and criminality and other effects of psychopathy occurred with such frequency in some families that there was ample room for the operation of inherited predisposing causes as well as precipitating causes in the environment.

It will not, I hope, be thought that in emphasizing factors of constitution and central nervous structure, I am anxious to convey that the psychopathic type of character deviation cannot be due to the failure of complete development of the function of mind in the presence of normal brain structure. The case of Caspar Hauser drew our attention to the fact that an individual with a presumably normal nervous system, but with no human environment with which it can react, is as surely mentally defective as one with demonstrable brain anomalies. In the same way it can hardly be expected that a child brought up in an atmosphere of negative affective relations and complete absence of social responsibility will develop normally, even if the physical substrate exists. The difference between the two cases is that in the structurally normal there is always hope of bringing them to a socially compatible outlook through resocialization in a reasonably favourable environment, and this is in fact what we are doing with no little success in our Approved Schools and Borstals, so great is the natural tendency to recovery. When however we are hampered by defect which we have at present no means of making good, we cannot replace, but can only readjust.

As the structure of the group in which we live becomes more complex and as it becomes more necessary to make laws, and especially regulations on the assumption of a conforming attitude in each individual, the number of those who will be unable to subscribe to the spirit of the regulations, especially to such highly civilized codes as those relating to road-traffic or income-tax, for instance, is likely to increase. It is unfortunate that the Welfare State can be to some only an incitement to exploitation; and the dangerous spread, as the result of food rationing, of the cult of the spiv, showed that we are having to test the citizenship of some of our population too far. Only the primitive call to martial virtues of a less civilized kind was able to avert a general deterioration in citizenship, and the threat is by no means gone. The law, in particular, has constantly to deal with individuals for whom at present it has little provision, the kind of man, as Macaulay said of George Fox, whose "intellect was in that most unfortunate of all states—too disordered for liberty and not sufficiently disordered for Bedlam". Can our study of the subject help the law to provide for the future? At the present our efforts in the courts, where we so often persist in using a language entirely foreign to the honest judges and juries, seems to excite as much negative as positive reaction.

We can no longer deport our more serious misfits, we cannot destroy them. We know that punishment will make no radical change, although there is reason to believe that with specially devised and realistic sanctions they can be made reasonably happy and can approach self-support. At present we remove from the community only those with gross intellectual defect, those who are criminal, yet manifestly not responsible for their crimes, those who are dangerous to others and those who have repeated in crime so often that all hope of reformation has gone. If we could, without reference to theories of psychopathology on our part, or of *lex talionis* on the part of the legislators, learn to measure the extent of social responsibility of the individual as judged by his behaviour, we should be able, if they fail in a therapeutic environment, to plan a means of giving a satisfying life to these incomplete human beings in whom our laws and customs can give rise only to perplexity and frustration. To retain them as citizens of whom the normal duties are to be expected may often only add to their burden. Faith in human nature and preoccupation with the liberty of the subject are admirable attitudes, but the provision of a suitable but separate non-penal environment for those subjects who are lacking in the qualities essential for citizenship in an overcrowded world is essential if the march of civilization is not to be held back to the pace of its stragglers.

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AN EVALUATION OF CHLORPROMAZINE ("LARGACTIL") IN PSYCHIATRY

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DURING the last two years, considerable interest has been aroused in the use of chlorpromazine in psychiatry, particularly on the Continent. A full report on the pharmacological properties of the drug appeared in 1953 (Courvoisier *et al.*), and a short account was given in the first paper describing the effects of chlorpromazine in the treatment of mentally ill patients in this country (Anton-Stephens, 1954). In that study, the drug was administered to patients in several diagnostic categories. A reduction in the disturbed behaviour of excited patients was observed, but considerable variation in response to the drug occurred. Small doses orally were ineffective, and a parenteral daily dosage of 200 mgm. was initially required to produce a clinical response.

This paper describes the results obtained in 42 female in-patients treated with chlorpromazine. Because many of the patients had previously or subsequently received other treatments, a limited comparison of the efficacy of chlorpromazine with electroshock, insulin, etc., may be made.

The patients, irrespective of diagnosis, were selected because they all showed increased and pathological psychomotor activity. They therefore represented serious nursing problems, and included patients showing such patterns of behaviour as severe restlessness, interference with and provocativeness towards other patients, destructiveness to clothing or bedding, window smashing, impulsive attempts at self injury, and assaults on staff or other patients. Many of these patients required nursing and management in single rooms, and their case papers recorded frequent occasions when seclusion was necessary.

METHODS

1. *Administration of chlorpromazine by mouth*

It was desired to gain further information on the effect of the drug given by mouth compared with parenteral administration. Several authors (Staehelin and Kielholtz, 1953; Delay, Deniker and Harl, 1952; Anton-Stephens, 1954), have reported that the effect differs according to the method of administration of the drug, the parenteral route being the more effective in producing a central inhibitory effect. In this series, if a patient was considered possibly to be showing some response to oral administration of chlorpromazine, the active tablets were replaced by dummy ones, unknown to the patient, and an equal period of observation on this regime instituted.

2. *Administration of chlorpromazine alone by injection*

Chlorpromazine was injected intramuscularly, diluted with an equal volume of N saline. This method was also applied in a small group selected from patients who had shown no response to oral administration.

3. *Administration of chlorpromazine by injection, combined with other drugs according to the technique of Deschamps (1952)*

This is named "artificial hibernation" on the Continent, and is really a form of prolonged narcosis. The central sedative effect of chlorpromazine is utilized to diminish the quantities of barbiturate needed to produce narcosis for a period of about 14 days.

GROUP 1. ADMINISTRATION OF CHLORPROMAZINE BY MOUTH

TABLE I

Schizophrenia of less than 5 years' duration	8
Schizophrenia of more than 5 years' duration	6
Manic–depressive psychosis: mania	3
Manic–depressive psychosis: depression	3
Obsessive–compulsive state	1
Schizo–affective state	1
Total	22

The results in this group can be quickly dismissed. No observable alteration in the mental state or behaviour of any of these patients occurred, which could be directly attributed to chlorpromazine, administered orally in a daily dosage of from 75–300 mgm. The average daily dose was 150 mgm. Duration of treatment varied from 10–106 days, averaging 33 days. Side effects were commonly observed. Tachycardia occurred in 13 patients, and 8 patients complained of somatic symptoms, the commonest being giddiness, palpitations, lassitude, weakness, dry mouth, and thirst.

Three of the schizophrenics had shown temporary remissions following courses of insulin given at an earlier stage in their illnesses. Two schizophrenics and 1 depressed patient had responded temporarily to courses of electroshock, and 2 schizophrenics improved considerably following pre-frontal leucotomy carried out after completion of their courses of chlorpromazine.

GROUP 2. ADMINISTRATION OF CHLORPROMAZINE BY INTRAMUSCULAR INJECTION

TABLE II

Classification by diagnosis

Schizophrenia of more than 5 years' duration	7
Schizophrenia of less than 5 years' duration	1
Manic–depressive psychosis: mania	8
Obsessive–compulsive state	1
Mixed puerperal state	1
Total	18

(Including 7 patients from Group 1, who had received chlorpromazine by mouth.)

The results in this group are shown in Table III.

Effects of intramuscular chlorpromazine on the mental state of excited patients

Half to one hour after an intramuscular injection of 50 mgm. of chlorpromazine the patient becomes drowsy and may even sleep, this effect being more pronounced during the first 2 or 3 days of treatment. This initial drowsiness soon wears off, being replaced by a general diminution of psychomotor activity. Manic patients become more subdued, restlessness and aggressiveness diminish, pressure of talk decreases, and rapport becomes possible, so that occupational therapy may be initiated when previously impossible. The general quietening effect on the patient permits easier management by the nurses, and greatly reduces the demands made on the nursing staff in the disturbed wards.

Delay and his colleagues report that the administration of chlorpromazine leads to a typical state (after the first 48–72 hours), which has been named the "4560 R.P. psychic syndrome" or "chemical lobotomy", because of its resemblance to the characteristic mental state following pre-frontal leucotomy. The patients are described as motionless and relaxed; staring, disinterested, and

TABLE III

Administration of chlorpromazine by intramuscular injection

Case No.	Age	Diagnosis	Duration of illness (years)	Response to earlier treatment	No. of days treated	Average daily dose (mgm.)	Response
1(T)	31	Schizophrenia	1	Transiently to electroshock	12+7	200	Indifference, with diminution of tension and impulsiveness during 1st course. Little or no result from 2nd course.
2(T)	43	Schizophrenia	6	Well to E.C.T. relapsing on discontinuance	56	200→50	Indifference with diminution of tension and hostility, although still deluded. Former aggressive outbursts controlled on maintenance dose of 50 mgm. daily.
3(T)	44	Schizophrenia	11	Nil	11	150	Reduction of agitation and restlessness not maintained on 300 mgm. daily p.o.
4	30	Schizophrenia	8	Ever-shortening remissions with E.C.T. and insulin	10+28	200→100	Recent leucotomy without improvement. After 200 mgm. c.p. daily, disappearance of aggression, with increased accessibility but lethargic and disinterested. Relapsed on discontinuing.
5	36	Mental defect. Schizophrenia	20	Nil (leucotomy)	14	200	Disappearance of aggressiveness, with increased accessibility. Now occupied and much improved in habits.
6	52	Schizophrenia	14	Nil (E.C.T.)	14	200	No effect on noisy, aggressive, and assaultive behaviour necessitating permanent nursing in side room.
7	30	Mental defect. Schizophrenia	7	——	42	200→100	From noisy, violent and senseless behaviour, became mute, tractable, and able to be occupied.
8	33	Schizophrenia	7	Very slight to insulin	28	50	Marked reduction of tension, with cessation of noisy outbursts, and lessening of preoccupations.
9(T)	66	Rec. mania	Present attack: 1½ years.	Nil to E.C.T.	7	150	Slight reduction in psychomotor activity not maintained on same dose p.o.
10(T)	57	Mental defect. Chronic mania	13	Temporarily to E.C.T.	48	200→50	Marked reduction in aggressiveness and overactivity. As good symptomatic improvement as with E.C.T.
11(T)	45	Rec. mania	Present attack: 1½ years.	——	48	200→100	Initial reduction in aggressiveness and overactivity. Effect maintained on smaller dose.
12(T)	45	Mental defect. Mania	Present attack: 9 months.	Nil to E.C.T. and narcosis	10	200	Temporary reduction in psychomotor activity followed by relapse after 7 days. No result from 300 mgm. daily by mouth.
13	58	Mania	35 Present attack 5 weeks	Responds to E.C.T.	7+7+7	75, 150, 300	No effect. Slight jaundice, and bilirubin in urine on maximum dose. Treatment stopped. Later responded to E.C.T.
14	27	Mania	1st attack. About 4 months	Nil to E.C.T.	60	50→200→50	Dramatic reduction in psychomotor activity following 50 mgm. chlorpromazine intravenously in 20 c.cm. N saline. Effect not maintained with later doses, but 200 mg. daily i/m controlled excitement. Patient remained well on 50 mgm. maintenance daily.
15	53	Mania	20 Present attack: 5 months	Temp. to narcosis	6	75→300	Slight reduction in psychomotor activity with 300 mgm. daily. No improvement after subsequent leucotomy. Four weeks after this, while on 150 mgm. c.p. by mouth, suddenly collapsed and died. Coronary thrombosis at autopsy.
16	33	Mixed psychosis	13	Transiently to leucotomy	15	100→200	Reduction of psychomotor activity with maintained improvement when drug stopped. Has remained stable for 6 weeks, and is fit for discharge.
17(T)	44	Obsessive–compulsive state	2¼	Temporarily to E.C.T.	9	200	Slight reduction of tension and anxiety.
18	27	Puerperal state	9 weeks	Nil to E.C.T.	14	200	Doubtful reduction of resistive and restless behaviour, with relapse after 7 days treatment.

(T) = no response previously to chlorpromazine by mouth in dosage of from 75–300 mgm. per day.

remote, but not drowsy, and with consciousness unimpaired. They are disinclined to talk, and their responses are of the briefest. This state may perhaps be likened to the mental state described in patients suffering from encephalitis lethargica.

In this series of 18 patients, the state described above was observed in 4 patients only—all schizophrenics. It was not observed in manic patients.

The response to chlorpromazine is very variable and cannot be predicted. For example, cases with little or no response to daily doses of 300 mgm. were seen, as well as those showing or maintaining improvement on 50 mgm. daily. After some days of treatment, the initial beneficial effect may wear off, and the patient slowly relapses.

Results

In the 8 schizophrenics, some symptomatic improvement occurred in 7, and was very marked in 4.

Case 2.—This woman aged 43, became increasingly suspicious of her husband at the beginning of 1948, and accused him directly of misconducting himself. The illness progressively gathered momentum, so that when she came under treatment she was intensely paranoid, agitated and hostile, asserting that her husband was unfaithful to her, that the food was tampered with, and that she had been placed in hospital by her husband to get her out of the way. Her vision was very poor from extensive choroidoretinal degeneration with myopia, and she wore thick pebble lenses. This doubtless partially accounted for the numerous and ever-changing misidentifications she made in the ward, and which led to painful scenes as she abused and upset patient after patient. As long as she was receiving E.C.T. she remained fairly calm and friendly, but relapsed into her former state immediately this was stopped.

No effect on her mental state was observed after 1 month of 150 mgm. chlorpromazine daily by mouth compared with an equal period on dummy tablets. After receiving 200 mgm. chlorpromazine daily intramuscularly in divided doses she showed within 3 days the "chemical lobotomy" described by Delay. The dose was reduced to a single daily injection of 50 mgm. after 10 days, and she has remained quiet, friendly, and occupied ever since, although still extravagantly deluded. The result here has been as good as that obtained with E.C.T.

Case 4.—A University graduate aged 30 holding a degree in philosophy. She had been ill since 1944 with remissions of 7 years and 1 year following insulin comas. Her present (third) relapse dated from May, 1952, when insomnia, restlessness, self-reproach and suspicion were soon followed by an incoherent, hallucinated, semi-stuporose state. Her behaviour again changed to aggressiveness, smashing, assaults on staff, while disorder of thought and paranoid ideas were very marked. She was extremely hostile to her husband, a neurotic, rather inadequate academic individual, and much of this hostility seemed displaced on to the staff. Any attempt at contact with her would usually provoke an aggressive outburst.

Modified pre-frontal leucotomy was carried out in February, 1954 without much change in her condition, apart from some immediate post-operative apathy. She soon relapsed into her usually sullen, spiteful, and assaultive behaviour and had to be nursed in a side room. She was given 200 mgm. chlorpromazine daily parenterally, and on the 2nd day was already improved in behaviour. On the 4th day of treatment she was up and dressed, occupied, and permitted to visit the canteen. After 10 days treatment she was pleasant in manner and co-operative, although her conversation was incoherent at times, and delusions were still in evidence. She relapsed 4 days after the drug was stopped, and did not respond again when the drug was resumed in daily doses of 100 mgm.

Case 5.—A mental defective aged 36, with super-added schizophrenia of 20 years' duration. She hoarded large quantities of rubbish, becoming very aggressive when separated from her treasures. Sudden window-smashing and assaults upon the staff had lately become a feature of her behaviour. Pre-frontal leucotomy was performed in January, 1954 with improvement in her behaviour over the following three weeks. She then relapsed into a stubborn resistive state during the day, with noisy restlessness and incontinence at night. Window-smashing promptly followed, precipitated by the removal from her possession of much accumulated rubbish.

She was given 200 mgm. chlorpromazine intramuscularly daily, and on the 2nd day of treatment was tranquil and approachable, readily persuaded to get up and dress, and was usefully employed in the ward. Urinary and faecal incontinence ceased. She maintained her improvement when the drug was stopped after 2 weeks treatment.

Case 7.—Mental defective aged 30. Superimposed schizophrenia of 7 years' duration. She was always overactive—at her best noisy, erotic and childish, and at her worst, destructive, abusive, and violent, dashing about the ward and upsetting (literally), the other patients. Her talk was full of strange phrases, and quite incoherent. After receiving 150 mgm. chlorpromazine i/m, she was very much more subdued by next day, and thereafter on 200 mgm. per day, showed the "chemical lobotomy" effect, becoming silent and with much reduction of her former restlessness. She remained practically mute, although smiling in response to jokes, and understanding commands. She was now tractable and co-operative, and has remained so on 100 mgm. daily.

In 7 cases of mania, the results were less impressive. Two cases, however, recovered after receiving the drug, and another case showed improvement comparable with that obtained earlier with E.C.T.

Case 10.—Mental defective aged 57. Chronic mania of 14 years duration. Mostly elated, extravagant and irresponsible in behaviour, making the wildest accusations against the staff, with more acute phases of threatening behaviour or actual assault upon other patients. A few days improvement had been obtained over the past year with short courses of E.C.T., but latterly it had become impossible to produce a convulsion.

150 mgm. chlorpromazine by mouth did not lead to the slightest improvement in this patient's behaviour, but the same dose given intramuscularly led to marked quietening of her noisy overactive state. After a further 7 days' treatment she was quiet, pleasant in mood and fully occupied. She has remained well on a reduced dose of 50 mgm. daily i/m.

Case 14.—Married woman of 27. Father depressed, once tried to gas himself. Since the patient's husband had developed a depressive psychosis and threatened repeatedly to take his life, she gradually became excited, and was admitted to hospital with all the classical features of mania, losing weight, and developing many septic skin lesions. There was no response to 3 consecutive daily E.C.T. administered early in the illness, and for the next 3 months she remained in a hostile resentful mood, talking incessantly, and profoundly regressed in behaviour.

There was a dramatic improvement following 50 mgm. chlorpromazine given intravenously, diluted in 20 c.cm. N saline, and she remained quiet for 48 hours before gradually relapsing. The drug was repeated on alternate days, the patient becoming tranquil, but for shorter periods. The drug was then administered intramuscularly in daily doses of 200 mgm., since when she has been up and dressed, and quiet and controlled in behaviour. Marked increase in weight and appetite have been observed, and the patient has remained well on 50 mgm. daily.

Case 16.—Single woman of 33. Recurrent psychotic illnesses since the age of 20. The earlier ones were characterized by schizophrenic features, and the onset seemed to have followed some disappointment over a man friend, with her engagement a few months later to a cripple. At this time she was described as unresponsive, mute, incontinent at times, but gradually emerged, then being slow, inclined to giggle, wandering and manneristic. Some improvement followed cardiazol, but 3 years later was in a catatonic excitement: ". . . restless in an aimless way, with a limited range of activity. She rushes out of bed, waves her arms, stands in corners and gesticulates. She has stripped herself, knelt, or taken up other fixed attitudes . . ." Declamatory and rambling in speech, limited range of topics and content bizarre, referring repetitively, for example, to her grandfather's Indian medals.

After a short remission of a few months, she relapsed again, did not respond to E.C.T., but improved after pre-frontal leucotomy. However, within a year she was back in hospital, but this time was more typically manic with overactive behaviour, flight of ideas, and expansiveness, e.g. declared she had been married for years and had produced a large family. A second leucotomy carried out about 7 years after the onset of her illness again resulted in temporary remission, but 2 years later she required re-admission, and since the end of 1950 had been constantly in hospital, apart from a period of about 12 months. She had spent about 50 per cent. of the last 13 years of her life in hospital.

Before treatment she was typically manic—decorated, overactive, shouting obscenities at the pitch of her voice, with flight of ideas, and irritability changing at once to aggressive abuse at the slightest frustration. 100 mgm. chlorpromazine, intramuscularly, increasing to 200 mgm. daily on the 4th day of treatment led to a reduction in all this activity. After 7 days, all that was observed was some pressure of talk, and after 14 days she was allowed town parole, and the drug stopped. She has remained well since (6 weeks at the time this was written), and is considered fit to be discharged.

Side effects

These were similar to those encountered when the drug was administered by mouth and deserve little comment. The experience in this series was largely similar to that reported by Anton-Stephens (1954). Complaints of giddiness, weakness, and tremulousness were common, and fainting occurred in 3 patients, who quickly recovered on being kept recumbent. Arnold *et al.* (1953) recommend that the patients be kept in bed for the first 2 weeks of treatment, while Anton-Stephens (1954) advises confinement to bed for the first 4 days. In this series the mental improvement was taken as indicating whether the patient should get up or remain in bed. Patients were encouraged to get up on the 3rd or even the 2nd day of treatment if able to do so, and the rarity of fainting appears to have justified this policy.

Despite the precautions taken to dilute the drug before injection (i.e. to 50 mgm. in 4 c.cm.), 5 patients complained of tenderness at the injection site, or were found to have tender indurations. These rapidly cleared up without special measures after discontinuing treatment.

No consistent effect on the white cell count was observed. In 2 cases slight increases occurred, almost certainly due to local indurative reactions from the chlorpromazine associated with slight rises of temperature.

Complications

1. Jaundice of slight degree was observed in a manic woman of 58, after 3 weeks' treatment in which an initial daily dosage of 75 mgm. was successively increased to 300 mgm. per day (Case 13). The jaundice disappeared within 48 hours of discontinuing the drug.

2. In one patient (not included in this series), an injection of 50 mgm. chlorpromazine (2·5 per cent. strength), was inadvertently given into the subcutaneous tissues of the thigh. Considerable pain and swelling of the thigh immediately followed, with sloughing and ulceration of the skin and subcutaneous tissues. Skin grafting was later required.

3. One death occurred while a patient was receiving chlorpromazine by mouth:

Case 15.—This was a woman of 53 who had suffered from several attacks of depression and mania since 1934. She was admitted on this occasion in August, 1952, severely depressed and suicidal, gradually improving following a long course of E.C.T., but then passed into a manic state a year later with much noisiness, aggression and destructiveness. A daily dosage of up to 300 mgm. chlorpromazine intramuscularly produced only a slight reduction in her psychomotor overactivity. Pre-frontal leucotomy was carried out in November, 1953, without any effect on her excitement, and chlorpromazine 150 mgm. daily by mouth was recommenced, with phenobarbitone 150 mgm. t.d.s. This regime led to some reduction in her excitement, but 4 weeks after the leucotomy, and 2½ weeks after recommencing chlorpromazine she suddenly collapsed and died at once. Autopsy showed extensive thrombosis of the left coronary artery.

The possibility at once arises that the hypotensive effect of chlorpromazine and the leucotomy, together with the increased demands made on the myocardium from the tachycardia so often associated with the drug, led to the fatal coronary thrombosis.

GROUP 3. ADMINISTRATION OF CHLORPROMAZINE COMBINED WITH BARBITURATES, PHENERGAN AND DIPARCOL (DESCHAMPS, 1952)

Technique

In this method, a state of narcosis lasting 2 weeks is produced by using chlorpromazine to "potentiate" the effects of relatively small quantities of barbiturate. In addition phenergan and diparcol are used, partly for their central hypnotic effects, and in addition because diparcol has a vagal blocking action which complements the mainly anti-adrenergic effect of chlorpromazine. Withdrawal phenomena, especially nausea and vomiting, have been described if the drugs are stopped suddenly, so that "tapering off" has been carried out as a routine. The quantities of drugs recommended by Deschamps were found to be somewhat low, and in this series (0·6 gram.) of barbiturate per day, together with 150 mgm. chlorpromazine, 150 mgm. diparcol, and 50 mgm.

phenergan were found necessary in most cases to produce 12–14 hours sleep per day.

One patient, a married woman of 32 was suffering from agitated depression, having had 2 previous attacks each of mania and depression. Six months before undergoing chlorpromazine narcosis, she had been treated by "orthodox" continuous narcosis while she was in a state of mania. A comparison of the two techniques is interesting (Table IV). Although the clinical states during the two treatments were quite different, the very small quantities of barbiturate required to produce almost as much sleep per day (when combined with chlorpromazine), as in the "orthodox" continuous narcosis, is very striking. In 7 patients treated by this method, 12½ hours sleep per day was obtained on average, the patients remaining in a drowsy torpid state for the remainder of the time.

The patient undergoing chlorpromazine narcosis appears much less toxic than in the earlier described methods. The depth of sleep is certainly less, and they are more readily rousable, less ataxic and confused, and recover more quickly, without any post-narcosis insomnia or fits. Albuminuria was not seen, the fluid balance was readily maintained, and ketosis was not observed. Depression of respiration and pulmonary complications were absent. Although the patients were very pale (due to the chlorpromazine), cyanosis was not seen. Slight depression of the blood pressure was the rule, but sudden and serious falls did not occur. Tachycardia was present in all cases, usually of moderate degree, with pulse rates ranging from 80–110. Cardiac irregularities did not occur.

A minor complication which caused some alarm earlier, until its significance was appreciated, was the rise of temperature resulting probably from the local irritative effect of chlorpromazine, which occurred in 4 out of the 11 cases. This complication has the disadvantage that masking of any underlying infection could occur. In the absence of clinical signs of infection elsewhere, it was not regarded as an indication for stopping treatment.

TABLE IV

Comparison of "orthodox" continuous narcosis with chlorpromazine narcosis

"Orthodox" narcosis—February, 1953.
Clinical state: mania.

Day No.	Morph. gr. ¼ Hyosc. gr. 1/100	Parald. (drams)	Sod. amytal (mgm.)	Barbitone (mgm.)	Hours sleep
1	3	2	500	500	10½
2	2	4	1,000	—	14
3	2	2	800	1,000	12¼
4	2	4	400	1,000	15¼
5	2	2	400	500	12½
6	2	2	1,200	500	15¼
7	2	4	400	1,000	14¾
8	1	4	800	500	19¼
9	2	2	860	1,000	16
10	2	4	400	1,000	13
11	1	4	800	1,000	16
12	2	2	800	500	14
13	1	4	400	1,000	15
14	2	2	400	500	13¼
				Total	201

Average: 14⅓ hours per day

Chlorpromazine narcosis—August, 1953.
Clinical state: depression.

Day No.	Mgm. Chlorprom.	Mgm. Phenerg.	Mgm. Diparc.	Mgm. Luminal.	Mgm. Butobarb.	Hours sleep
1	50	50	100	150	100	10
2	150	50	100	200	200	9½
3	150	50	150	300	200	17
4	150	50	150	400	200	15
5	150	50	200	400	200	13½
6	150	50	200	400	200	13½
7	150	50	150	250	200	16½
8	150	50	150	250	200	11
9	150	50	150	250	200	10½
10	150	50	150	250	200+25 mg.	13½
11	150	50	150	250	200+25 mg.	11
12	150	50	150	250	200+25 mg.	10
13	150	50	150	250	200+25 mg.	13
14	150	50	150	350	——+25 mg. pethidine	12½
					Total	176½

Average: 12½ hours per day

Results

Classification by diagnosis

Schizophrenia of more than 5 years' duration	3
Manic–depressive psychosis: mania	4
Manic–depressive psychosis: depression	4
	11

The patients were selected because of (1) excitement or pathological and increased psychomotor activity, (2) agitation, (3) severe tension.

The outcome of treatment in these 11 cases was disappointing. In only one patient, a 29 year old single woman suffering from a recurrent depressive state with much agitation and tension, was there some symptomatic improvement. This improvement was no more pronounced or sustained than the results of electroshock, modified insulin, and narcosis given her in previous attacks.

Discussion

In the past two years, a number of reports have described the use of chlorpromazine in the major psychoses. Hamon *et al.* (1952), first described in a case of mania, the use of intravenous chlorpromazine combined with pethidine and thiopentone for 19 days. A markedly sedating effect persisting for several hours was produced after each injection. Cossa *et al.* (1953), reported favourable results in the treatment of 6 maniacal patients. Delay *et al.* (1952) have reported that chlorpromazine alone has a marked symptomatic effect in states of excitement and confusion, in daily doses of from 75–150 mgm., administered parenterally. Sigwald and Bouttier (1953), among 48 out-patients treated with chlorpromazine, included a group of 5 "chronic hallucinatory psychoses", which, from the brief case histories given are clearly schizophrenics. Symptomatic improvement with doses as low as 75 mgm. per day given parenterally occurred in 2 cases.

Staehelin and Kielholtz (1953) described marked improvement in 2 cases of acute schizophrenic excitement with doses of 100–150 mgm. daily given intramuscularly. In chronic schizophrenics, symptomatic reduction of aggression and excitement was observed, without any effect on the delusions and hallucinations. A suppressive effect on the agitation of a depressed patient was observed, and in another patient commencing an attack of mania, the symptoms here were similarly suppressed. In all their cases they noted a marked tendency to relapse when the drug was discontinued. Arnold *et al.* (1953) reported 66 patients treated with chlorpromazine. Their series included 19 confusional states of varying aetiology, 9 manias, and 6 depressive psychoses. In the confusional states resulting from senile dementia and cerebral arteriosclerosis, symptomatic relief followed the administration of 75–100 mgm. daily by injection. Manic states responded less well, the patients appearing to become habituated to the drug. The authors stressed that the immediate result was better than that obtained by E.C.T. in mania, because of the absence of amnesia, thus leading to the possibility of forming a psychotherapeutic relationship. Chronic hypomanic states were not influenced. In depression, symptomatic relief occurred only during the treatment, relapse occurring directly the drug was stopped. Schizophrenic excitements were favourably influenced by the drug, but without affecting the basic structure of the illness.

Lehmann and Hanrahan (1954) in a valuable paper, reported that chlorpromazine administered parenterally, was far more effective than when given orally, but that tolerance quickly developed, necessitating an increase in dosage after a few days to maintain the effect. They gave up to 800 mgm. daily to a series of 71 patients over a period of 4 months. The best results were observed in manic or hypomanic patients, but the drug was effective in other severe excitements of varying aetiologies. The authors also used the drug in excited patients who had already undergone pre-frontal leucotomy (presumably without improvement). They agreed with earlier reports that chlorpromazine does not influence delusional systems or hallucinatory phenomena.

Deschamps (1952, 1953) was the first worker to use chlorpromazine combined with phenergan, diparcol, and barbiturates in the treatment of acute psychoses, where promising results were observed. Chronic cases were unaltered. Ey and Berard (1954) found that the best results with this technique were obtained in the psychoneuroses. They combined sodium amytal, phenobarbitone, and chlorpromazine. In chronic psychoses good results were not obtained (Berard). The experience in the present series is very similar, and although the method of chlorpromazine narcosis is a technical improvement over the earlier drug combinations, it is unlikely to find its maximum usefulness in the treatment of the major psychoses. In this connection Gillespie's (1939) conclusions may be quoted: "The recovery rate in continuous narcosis in recent psychoses never exceeds, and usually falls short of the ultimate spontaneous recovery rate."

Toxic effects and complications

1. Local irritant effect. Painful muscle indurations may result from injections (Anton-Stephens, 1954). Injections of chlorpromazine solution are irritant, depending to some extent on the concentration, and may cause ulceration, as was observed by Anton-Stephens and the present author. Dilution of the drug renders this complication unlikely (Deschamps, 1952; Staehelin and Kielholtz, 1953; Arnold *et al.*, 1953).

2. Febrile response. Unexplained rises of temperature have been reported by several workers (Staehelin and Kielholtz, 1953; Delay *et al.*, 1952; Anton-Stephens, 1954). Experience in this series suggests that fever, often associated with leucocytosis, may be due to the local irritant effect. However, it is possible

that the central hypothermic effect of chlorpromazine may occasionally be reversed.

3. Severe tachycardia and dyspnoea sufficient to necessitate ending treatment have been reported in patients receiving up to 150 mgm. per day of chlorpromazine by intramuscular injection (Bensoussan and Klein, 1953). Although tachycardia seems to be a common side effect of chlorpromazine, it did not lead to interference with treatment in this series. The exclusion, wherever possible, of patients with a history or evidence of cardiac disease, when selecting psychiatric cases for chlorpromazine therapy, need hardly be stressed. Present knowledge indicates that chlorpromazine does not affect the electrocardiogram (Friend and Cummins, 1953).

4. Nausea, anorexia, and epigastric distress were described by Lehmann and Hanrahan (1954) in 8 per cent. of their patients, and allergic reactions were observed in 13 per cent. A maximum dosage of 800 mgm. per day was given. These authors pointed out that such effects were particularly interesting, because chlorpromazine has powerful anti-emetic properties (Friend and Cummins, 1953), and also belongs to the group of anti-histamine drugs. Similar complications were not seen in the present series.

5. Toxic jaundice has been observed in 3 patients treated for from 2–4 weeks (Lehmann and Hanrahan, 1954). The jaundice cleared up within 10 days of stopping the drug, whose dosage in those cases was not stated. In the present series, 1 patient developed a transient toxic jaundice after receiving 3·7 grams chlorpromazine over 3 weeks, the maximum daily dose being 300 mgm. intramuscularly. The condition disappeared in 48 hours after treatment was stopped and did not recur. After this experience, the daily dosage was not increased above 200 mgm.

Lehmann and Hanrahan also reported slight changes in the cephalin-cholesterol flocculation test in about half their patients. Thirty per cent. of their patients showed changes in total serum proteins, and albumin-globulin ratios, mostly of minor degree.

6. Varying accounts of alterations in the leucocyte count have appeared. Staehelin and Kielholtz (1953), described transient increases in W.B.C.s following initial injections of chlorpromazine. Friend and Cummins (1953), Lehmann and Hanrahan (1954), found no change in W.B.C.s, the former authors giving up to 100 mgm. chlorpromazine per day by injection for periods of 3 months. Anton-Stephens (1954) recorded falls in W.B.C.s in 11 out of 23 cases receiving daily injections totalling 200 mgm. chlorpromazine, but not in those receiving the drug by mouth. He also observed rises of sedimentation rate during treatment.

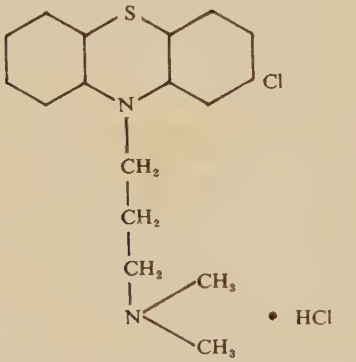
In the present series no consistent alteration of W.B.C. count was observed, with the exception of a leucocytosis associated with the febrile response mentioned above.

Mode of action

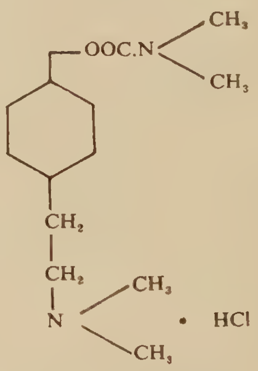
The mode of action of chlorpromazine is quite unknown. Lehmann and Hanrahan (1954) postulate that the effect of chlorpromazine is exerted selectively on the reticular substance of the brain stem, with little effect on cortical metabolism, citing results which indicate that the drug has little effect on psychological functions which are cortically mediated. Such a theory would not explain all the effects of chlorpromazine, and in particular its hypothermic effects, and its potentiating action on barbiturate sedation.

Structurally, chlorpromazine has a resemblance so far as its side chain is concerned, to other tertiary ammonium compounds such as eserine and hordenine.

Tertiary ammonium compounds have the property of giving rise to free base, which, being lipoid-soluble may well dissolve in the nerve cell membrane thus entering the cell, where conceivably, some anti-cholinesterase activity might occur. The concentration gradients of chlorpromazine within the central nervous system would then be a function of density of cell population. There is in fact evidence that chlorpromazine acts selectively on nuclear structures. For example it is powerfully anti-emetic (Friend and Cummins, 1953), presumably by a direct action on the vomiting centre. Related tertiary compounds like phenergan (promethazine hydrochloride), and lysivane (ethopropazine hydrochloride) similarly are "anti-Parkinsonian" drugs with a selective action on the basal ganglia, and a weak central sedative effect.



Chlorpromazine hydrochloride



Dimethyl carbamic ester
of hordenine hydrochloride

It is known that the EEG after chlorpromazine in intramuscular doses of up to 100 mgm. gave readings comparable with those of physiological sleep, and did not show the characteristic modifications of barbiturate sedation (Terzian, 1952).

On the basis of these somewhat scattered observations the following hypothesis of the central action of chlorpromazine is offered. Chlorpromazine as a tertiary ammonium compound gives rise to free base in the central nervous system, which has the property of entering nerve cells, and like related compounds will achieve its maximum effect according to the density of cell population. Such a differential concentration would explain the anti-emetic and hypothermic effects of chlorpromazine. If selective concentration in the basal ganglia including the thalamus were to occur, this might account for the peculiar "chemical lobotomy" effect first reported by Delay. The efficiency of chlorpromazine in the reduction of pathologically increased psychomotor activity would depend then on its interference with corticothalamic circuits.

The peripheral effect of chlorpromazine is mainly anti-adrenergic. Oral administration in ordinary doses might not produce adequate concentrations within the central nervous system, and merely lead to the side effects described, i.e. tachycardia, fall of blood pressure, thirst, etc., due to its peripheral anti-adrenaline activity.

SUMMARY

The results of parenteral administration of chlorpromazine in a series of 27 female in-patients have been described. The drug was administered alone, and in combination with phenobarbitone, butobarbitone, phenergan, and diparcol. Symptomatic improvement occurred in 7 out of 8 excited and impulsive, or aggressive schizophrenics, and was very marked in 4 cases. These effects were brought about by an average daily dosage of 200 mgm. The results in mania were less impressive, but 2 out of 7 patients obtained remissions after treatment with chlorpromazine. Another patient with a mixed psychosis, who had had earlier remissions after two pre-frontal leucotomies, again remitted following chlorpromazine.

The drug was inactive in 22 major psychoses when administered by mouth in doses of up to 300 mgm. per day, although the presence of side effects showed that it was being absorbed.

When combined with barbiturates, phenergan, and diparcol, chlorpromazine can be used to produce a continuous narcosis, which gives rise to considerably fewer toxic effects than in the earlier described methods of drug narcosis. In this sense, the method of "artificial hibernation" (chlorpromazine narcosis), represents a distinct advance, but is unlikely to find its major application in the treatment of the psychoses. In the present series of 11 patients, only one showed any benefit from the treatment. This experience is identical with that of Continental workers.

The main toxic effects of chlorpromazine are (*a*) local irritation, which can largely be prevented by adequate dilution, i.e. 50 mgm. chlorpromazine in 5 c.cm., or a 1 per cent. solution, and (*b*) toxic jaundice, which so far has been observed in occasional cases on varying doses of chlorpromazine. The undesired side effects of the drug, i.e. tachycardia, orthostatic fainting, etc., do not appear to be a contraindication to its use in the control of psychotic excitement.

On the basis of the present results, chlorpromazine is regarded as the drug of choice in the management of acute excitement, being in this respect probably as efficacious as electroshock. The drug is most effective in schizophrenic excitements. The rapid reduction of aggressiveness, diminution in psychomotor overactivity, without the production of drowsiness or confusion, renders the drug particularly valuable in facilitating psychotherapeutic contact. Unfortunately, tolerance quickly develops in some patients, so that the beneficial effect may disappear after 10–14 days. Despite this limitation, however, chlorpromazine represents a definite therapeutic advance in the treatment of psychotic excitement.

ACKNOWLEDGMENT

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NOTE

Since this paper was written, further experience in the use of oral chlorpromazine has been published. Howell *et al.* (*Practitioner*, 1954, 172) observed a reduction in the restlessness and agitation of 18 out of 20 senile psychotics to whom chlorpromazine was given orally in doses of up to 75 mgm. per day.

SOME MORBID-ANATOMICAL ASPECTS OF MENTAL DEFICIENCY

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> Clown: . . . Nay, I'll never believe a madman till I see his brains.
> *Twelfth Night.*

INTRODUCTION

SUBSTANTIAL contributions to clinical medicine have come from the many accounts of abnormalities in the brains of mental defectives, our knowledge of certain conditions such as epiloia, amaurotic family idiocy and microcephaly being largely based on them. But, in the main, these reports have concerned cases selected for some special interest and few workers have attempted to relate morbid-anatomical changes to the general problem of mental deficiency. The most complete description, chiefly histological, of lesions in the brains of idiots is that of Schob (1930), who summarized in his valuable contribution the wide experience of German neuropathologists. The brains of 120 unselected cases were later studied by Berry (1938), the results being published in an atlas illustrating, case by case, the differences between normal and mentally defective individuals. More recently, Christensen and Vestergaard (1949) presented a short account of a routine autopsy series of 46 mental defectives, finding some structural abnormality in every one of these cases. Other researches covered more restricted aspects of the problem and some of these will be referred to below.

Still, all these interesting studies leave much unexplored. The number of fully investigated cases is small in relation to the importance of the problem, and there remains much to be learned, for example, about the rarer and less conspicuous lesions, about the constancy and frequency of structural changes in these patients, and their relation to the mental deficit.

Probably more information about the morbid anatomy may assist clinicians in elucidating the aetiology and, through this, in preventing certain forms of mental defect. It may also provide help in understanding the functional mechanisms underlying the handicaps of the affected individuals.

As few morbid anatomists work in this field, progress is unlikely to be rapid, and it will depend to some extent on the dissemination of experience gained during routine pathological examinations. It may be timely therefore to record here the interim main observations in 117 autopsies with certain tentative conclusions concerning the brain weight, hydrocephalus and ventricular dilatation, other common lesions, and the causes of death among mental defectives.

MATERIAL AND METHODS

The first 110 autopsies were consecutive and the last 7 were mongols selected from 12 incompletely investigated cases so as to add definition to some particular comparisons of mongol and non-mongol mental defectives. There were 47 females and 70 males, the mental assessment being: idiots 73, imbeciles 30, feeble-minded 3, and not assessed 11. The age distribution is given in Table I.

TABLE I

Distribution according to Age

Age in years	Number of cases
1	20
2	25
3	19
4	13
5	9
6	4
7	7
8	5
9	—
10–20	12
20–30	2
Over 30	1
Total	117

Since most of the patients were well under 10, and 65·9 per cent. under 5, mental assessment was, at best, approximate.

Nearly all the cases were patients in one hospital for juvenile mental defectives from which patients are transferred elsewhere, usually at the age of 14, and this accounts for the virtual absence of the adult and elderly in the series. Social workers and psychologists are employed at the hospital and this enabled a satisfactory history to be obtained for many of the cases. Five cases were treated in other hospitals, material for examination being received after their death and autopsy.

The clinical classification of the patients is given in Table II.

TABLE II

Clinical Classification

1. Psychosis	1
2. Cases with evidence of Organic Abnormality:	
A. *Diffuse*	
Mongolism	21
Gargoylism	4
Phenylketonuria	1
Epiloia	3
B. *Chiefly Neurological*	
Gross microcephaly	4
Cerebral palsy	30
Hydrocephalus (not post-infective)	4
Birth injury	4
Icterus gravis neonatorum	
a. Rh incompatibility	4
b. Not Rh incompatibility	5
Megalencephaly	1
Schilder's disease	1
C. *Infective*	
Post-meningitic	2
3. Unclassified	32

Fifty-four of the patients in all 3 categories above had epilepsy, 10 a history of prematurity, 2 retrolental fibroplasia, 2 microphthalmia, 1 generalized follicular hyperkeratosis, and 3 had multiple manifestations of skeletal malformation, viz. syndactyly, polydactyly and absence of phalanges.

Most of the autopsies were done at the hospital as soon as possible after death, but a few were done at public mortuaries at the direction of the coroner, and the available material is also included here.

While particular attention was paid to the state of the brain and spinal cord, the other organs were also examined in the normal way. The brain was inspected immediately after removal, attention being paid to its consistency. Induration or softening was sought and their location noted. This proved useful later, since even moderate alteration in consistency becomes imperceptible after fixation. Formalin was used for fixation, after which the brains were X-rayed in the antero-posterior position and from above downwards. The X-ray photograph served chiefly to localize any calcium deposits and as a ready guide to any degree of ventricular dilatation. The brains were then photographed and, after a more detailed macroscopical description, cut in coronal blocks. Most of the brains were weighed before and after fixation, cases of obvious obstructive hydrocephalus being excluded. The cerebellum and brain-stem were separated from the rest of the brain by a coronal incision commencing immediately behind the mamillary bodies and ending posteriorly at the level of the superior corpora quadrigemina in a way designed not to damage the medial geniculate bodies and the pulvinar. After this work was already in progress the routine was introduced of weighing separately these two parts of the brain.

Following upon the naked eye inspection of the coronal blocks, representative sections were embedded in celloidin and paraffin. The number of blocks varied from case to case and included, as a rule, the orbital surface or complete section of the frontal lobe, the entire lower half of the temporal lobe, the basal ganglia, the central fissure and the adjoining portions of the frontal and parietal lobes, the occipital lobe, the sagittal plane of the cerebellum including the dentate nucleus, the midbrain, pons, medulla and 3 or more levels of the spinal cord. The cut sections were stained with the usual neurological and general stains. These included cresyl violet, the Heidenhain method for myelin fibres, haematoxylin and eosin, haematoxylin and Van Gieson, the Holzer stain for fibrous glia, other stains being used if indicated. Frozen sections were also employed freely for silver impregnation and for fat staining.

The investigation is still in progress and is likely to last a number of years. A full macroscopical examination was done in all cases, but the histological study has only been completed in 30 and a further 24 have been partially examined. Some of the findings are published already as case reports, and a summary of all is appended to this communication (Appendix I).

WEIGHT OF THE BRAINS

The brain weights, those of mongols being given separately, are plotted in Fig. 1 together with the normal distribution curve. Only 10 lie along or above the normal.

These 10 are classified in Table III, and although several more of the lighter brains might well be situated within the lower limit of the standard deviation, this cannot modify the conclusion that reduction in weight was probably the most common single abnormality in this series.

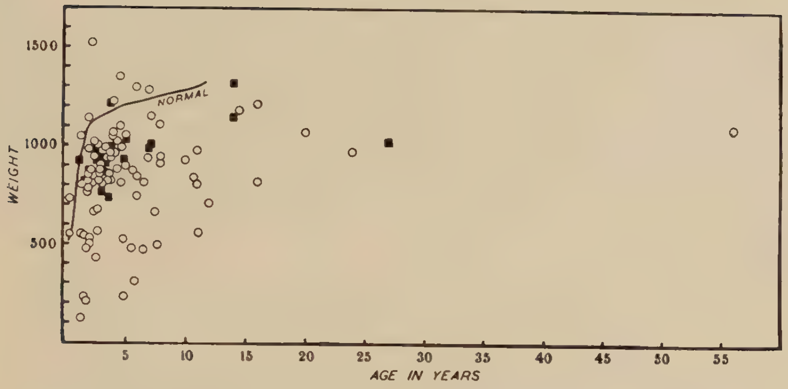

FIG. 1.—WEIGHT IN GRAMS OF BRAINS OF MONGOLS ■, AND NON-MONGOLS ○, PLOTTED AGAINST AGE IN YEARS, COMPARED WITH THAT OF NORMAL CHILDREN ACCORDING TO COPPOLETTA AND WOLBACH (1933).

TABLE III

Classification of Normal or Heavy Brains

Epiloia	2
Mongolism	2
Gargoylism	1
Megalencephaly	1
Psychosis	1
Gliotic encephalopathy	1
Phenylketonuria	1
Not classified	1

The diminished brain weight becomes even more significant in view of the frequency of terminal oedema and of ventricular dilatation in these brains, further details of which will be discussed below. Cases of gross hydrocephalus were, as stated above, not weighed, but the residual fluid in the dilated ventricles of other brains was included, so increasing the recorded weight and masking an even greater reduction in the net weight of the brain substance.

These findings agree with those of Berry who commented upon his own figures as follows:

> "Differently and quite simply expressed, these figures, which include all defectives whether megalencephalic, hydrocephalic or mongol, show that the defective brain is just about 20 per cent. too small for weight and size, and has at least 10 per cent. less planimeter cortical area."

Similar conclusions were reached by Ashby and Stewart (1933) who measured the head size of mental defectives and correlated the results with mental age. They found that:

1. Head size decreases generally with decreasing intelligence.
2. The falling off in size is quite general and affects equally head length, head breadth, head height and ear to ear measurements. Brain volume, when made comparable, also alters in just the same way.
3. The falling off is most marked in the "idiot" region.

They measured in a later study (Ashby and Stewart, 1934) the mesial cross-section of the corpus callosum from mental defectives whose mental age had been estimated and found, in this case also, a significant correlation between its size and intelligence.

Further, they measured the body weight, arm length and foot length of mental defectives of different estimated mental ages, and found that all these decrease with mental age, the fall being more rapid towards idiot levels. They noted, moreover, that the body size fell off more rapidly than head size with the decline in intelligence. One of the conclusions they drew, was that mental deficiency manifests itself as much in the body as in the brain, if not more so. Mental deficiency was therefore, in their view, a general phenomenon affecting the whole individual rather than a localized disturbance affecting merely one small part, such as the brain.

The body weights at autopsy are recorded here (Appendix I) but without statistical treatment yet because of certain difficulties which it is hoped to overcome in the future. One difficulty is the rapid loss of weight suffered by most mentally defective children during their terminal illness, and another is to find adequate controls. The available figures are, however, compatible with the view that the body weight is reduced proportionately at least as much as the brain weight in mental defectives.

The further deduction of Ashby and Stewart concerning the involvement of the whole body in mental defectives rather than any one of its parts, requires qualification. While it is axiomatic that disease always affects the individual as a whole, the importance of the involvement of any one element is seldom, if ever, equal to that of others. The role played by any one system can hardly be expected to emerge from simple comparisons of weights; statistical analysis is of little value when it is based solely upon comparisons of readily measurable factors and ignores other relevant less manageable evidence. No one can reasonably doubt that the leading aspect of mental defect is the brain, which presents many abnormalities in addition to reduction in size. These include, for example, such lesions as gliosis, cysts, demyelination and selective atrophy or agenesis of one or other of its parts. The small bodies or somatic organs of mental defectives are seldom associated with analogous lesions, but may show structural changes attributable to disuse or faulty innervation. Lesions on one side of the brain or in one part of the spinal cord may, moreover, involve a secondary reduction in the corresponding parts of the body.

These considerations, important as they may be, are overshadowed by the massive evidence relating brain to intelligence and it is impossible therefore to deny the pre-eminence of the structurally and functionally abnormal brain in mental deficiency. Certain factors, such as endocrine or metabolic dysfunction may affect, of course, other organs as much, or even more than the brain, but the importance of the latter in the pathogenesis of mental defect remains overwhelming. That some diffuse universal tissue or germinal defect can explain these cases is without pathological confirmation.

Brain Weight in Mongolism

It was shown in Fig. 1 that the brains of most mongols, like those of other mental defectives, are lighter than in normal children. They tended, however, to be less variable than those of non-mongols, and none showed marked microcephaly. This corresponds with the clinical picture of mongolism with its relative physical uniformity and the tendency of the mental level to remain within the range of imbecility (I.Q. 20-50).

It is commonly held that the cerebellum, weighed together with the brainstem, in mongols is smaller compared to the rest of the brain than in normal children. Kinnier Wilson (1940) quoted 2 sources supporting this. Wilmarth (1890, quoted by Wilson, 1940), who examined five brains of mongols and found the pons and medulla oblongata to be only half the normal weight, and Tredgold, who reported that the brain of a mongol dying 14 days after birth weighed 340 g. and its cerebellum and pons only 19 g. As this evidence seemed insufficient, it was decided to verify this statement and the results are given in Fig. 2. It will be seen that they confirm the relative smallness of the cerebellum and brain-stem in mongols. They also show that the cerebro-cerebellar ratio is more constant in mongols than in other mental defectives.

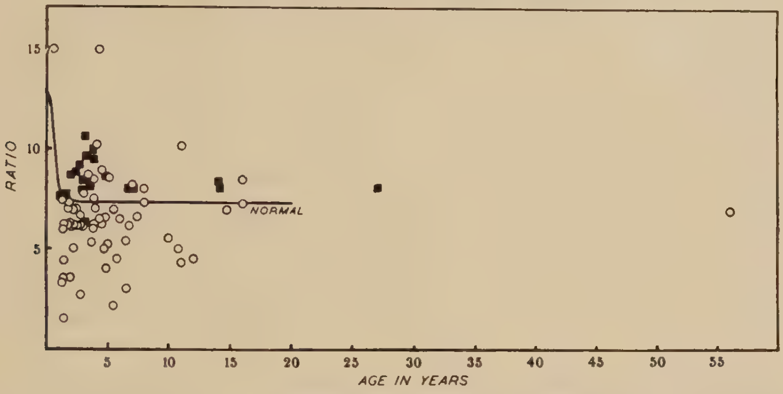

FIG. 2.—RATIO OF WEIGHT OF CEREBRUM OVER WEIGHT OF CEREBELLUM AND BRAIN-STEM PLOTTED AGAINST AGE IN YEARS. MONGOLS ■. NON-MONGOLS O. NORMAL DISTRIBUTION ACCORDING TO KROGMAN (1941).

A mongol brain may often be recognized as such by a pathologist with some experience of mental deficiency by the following features: round shape, absence of localized cystic or gliotic lesions, a somewhat simplified pattern of gyri, an impression of relative smallness of the frontal lobes and of the superior temporal gyrus, and reduction in the size of the cerebellum and brain-stem. These findings are also in keeping with the clinical uniformity of the condition.

HYDROCEPHALUS AND VENTRICULAR DILATATION

Although only 6 cases were classified clinically as hydrocephalus, either post-infective or without ascertainable cause, a total of 73 presented some degree of ventricular dilatation (Table IV).

TABLE IV

Hydrocephalus and Ventricular Dilatation

1. Obstructive Hydrocephalus	
a. Post-meningitic	6
b. Arnold-Chiari Malformation	3
c. Stenosis of aqueduct	1
d. No apparent cause	1
	11
2. Ventricular Dilatation	
Considerable	17
Moderate	19
Slight	26
	62
Total	73

Four cases of ventricular dilatation were unilateral and 2 were localized to one part of the ventricular system.

In the cases recorded as obstructive hydrocephalus there was evidence of past or persistent elevation in intraventricular pressure such as enlargement of the head, flattening of the cerebral cortex and of the contiguous white matter, with detection of the cause of the obstruction in all but one of the subjects. The 62 cases recorded as ventricular dilatation presented no such evidence, the dilatation being associated with a reduction in size of the overlying brain, without any signs of increased pressure. There was little doubt that such ventricular enlargement was an *ex vacuo* one, secondary to cerebral atrophy, particularly as it occurred in the 6 cases of unilateral or localized ventricular dilatation without obstruction to the outflow from the dilated parts, but with adjoining cerebral atrophy.

Current views on hydrocephalus have been strongly influenced by the authoritative survey of Russell (1949). She concluded, from her material, that all cases were caused by obstruction to the circulation or absorption of cerebrospinal fluid. The detection of this enabled her to eliminate the unfortunate term "idiopathic" from the nomenclature of this disease. The 11 cases of obstructive hydrocephalus in the present series confirm Russell's views, 10 bearing evidence of such obstruction, with its lost traces perhaps, obliterated in the single exceptional case.

Russell did not mention the possibility of *ex vacuo* ventricular dilatation without obstruction to the C.S.F. circulation such as presented by the 62 cases here, and the brains of senile patients with cerebral atrophy. In view of her work, it would seem best to employ the term "hydrocephalus" for ventricular enlargement caused by obstruction, designating the others "ventricular dilatation".

FREQUENCY AND CHARACTER OF LESIONS

Most brains in this series showed multiple abnormalities, some of doubtful significance, and since the histological examination has not been completed in all, only the main naked eye changes have been listed in Table V. (The diagnosis in all 5 cases of lipoidosis, including gargoylism, was confirmed microscopically.)

Histological examination in the 3 cases recorded in Table V as showing no naked eye abnormality is still incomplete, but sections of paraffin embedded material taken from them showed no pathological change.

These findings may be compared with those in the 46 cases recorded by Christensen and Vestergaard, which were as follows:

"*Group I*, congenital anomalies, comprises 22 patients:
Group Ia: 11 cases with congenital cerebral dysplasia.
Group Ib: 6 cases of mongolism.
Group Ic: 1 case of phenylpyruvic oligophrenia.
Group Id: 1 case of diffuse leukencephalopathy.
Group Ie: 2 cases of tuberous sclerosis.
Group If: 1 case of callosal agenesia.

Group II, acquired affections of the brain, comprises:
Group IIa: 5 cases of infectious or post-infectious lesions.
Group IIb: 6 cases of porencephalia.
Group IIc: 7 cases of atrophy of uncertain origin.
Group IId: 3 cases of status marmoratus.
Group IIe: 2 cases of senile changes.
Group IIf: 1 case of kernicterus."

TABLE V

Frequency of Structural Abnormalities in the Brain

Reduction in size	107
Ventricular dilatation	62
Localized agenesis or atrophy	45
Ulegyria	26
Simplified pattern of gyri	20
Opercular defect	20
Localized or diffuse induration	19
Fibrosis of meninges	13
Partial atrophy of corpus callosum	12
Obstructive hydrocephalus	11
Cystencephaly	9
Lipoidosis (including gargoylism)	5
Microgyria	5
Arhinencephaly, bilateral	4
Arhinencephaly, unilateral	1
Tuberous sclerosis	4
Absence of corpus callosum	3
Intracranial calcification	3
Chronic purulent meningitis	3
Retrolental fibroplasia	3
Porencephaly	3
Pachygyria	2
Fusion of frontal lobes	2
Microphthalmia	2
Status spongiosus of white matter	2
Cerebral abscess	1
Central neurofibromatosis	1
Megalencephaly	1
No naked eye abnormality	3

Christensen and Vestergaard presented the above table as a morbid-anatomical classification of their cases. It is clear, however, that several of the terms in it refer to aetiological or clinical features rather than morbid anatomy. Their report also indicates elsewhere that structural changes were actually found in the brains of all their cases.

Differences between normal and abnormal cases were likewise present in every one of the cases recorded by Berry: he confined the greater part of the comparison to the more elusive pattern and configuration of the cerebral gyri.

It can be concluded therefore that obvious structural changes are present in the brains of most patients with severe mental defect.

CAUSE OF DEATH

The causes of death, given in Table VI, were determined by naked eye inspection and, in most cases, confirmed microscopically.

It is striking that by far the most frequent cause of death was some form of respiratory disorder. Although 75 of the cases were recorded as having died from "broncho-pneumonia", both the naked eye and microscopical appearances in these differed from those seen usually in bronchopneumonia of subjects who are not mentally defective.

They were often neither so extensive nor so pronounced and presented histologically a combination of polymorphonuclear infiltration, lobular collapse and inhalation pneumonia with many phagocytic cells containing irregular granules, vacuoles and globules of fatty or albuminous material. The

TABLE VI

The Primary Cause of Death

Broncho-pneumonia	75
Inhalation pneumonia	4
Pulmonary collapse and inhalation pneumonia	3
Pulmonary collapse	2
Cerebral abscess	1
Sulphanilamide nephrosis	1
Peritonitis	1
Enteritis	1
Pyelonephritis	1
Pulmonary collapse and broncho-pneumonia	1
Suffocation by inhalation of faeces	1
Lung abscess	1
Lobar pneumonia	1
Not recorded	24

component elements varied from case to case, but the condition could be described in most as bronchial or alveolar infection with aspiration pneumonia and collapse.

The frequency of terminal respiratory disease is not simply attributable to special susceptibility to pulmonary infection. Most of the cases were bedridden, often immobile, with poor cough reflexes. Nursing in hospitals is often unavoidably inadequate and all patients lack individual mother's care with the movement and care it provides. Inhalation of food, mucus and saliva is therefore facilitated, as the physiological and social defences against it are impaired. Any minor disease, whether respiratory, repeated epileptic fits, digestive upset or fever will tend to enhance the patient's disability and make him even more likely a victim of inhalation. The respiratory system becomes, in this way, the *locus minoris resistentiae* where adaptation to environment is impaired by neurological disease.

SUMMARY

The discussion of certain morbid-anatomical aspects of mental deficiency is based on 117 autopsies of juvenile cases, chiefly of low grade. The clinical classification of the patients is followed by an enumeration of the chief structural changes in the central nervous system. The commonest feature was reduction in the brain weight, seen in 107 cases. Mongol brains were likewise small, but tended to be less variable and somewhat heavier than those of non-mongol defectives. The ratio of cerebellum and brain-stem to the rest of the encephalon was smaller and more constant in mongols than in other defectives. Another common finding was obstructive hydrocephalus, seen in 11 cases, and varying degrees of ventricular dilatation without obstruction to the circulation of cerebro-spinal fluid, seen in 62 cases. It is suggested that this ventricular dilatation is secondary to cerebral atrophy or agenesis. Other gross lesions are listed in their order of frequency, and attention is drawn to the presence of structural changes in the overwhelming majority of the fully investigated cases. Most of the patients died of respiratory disease, the pathological findings being a combination of broncho-pneumonia, inhalation pneumonia and collapse. It is suggested that this susceptibility to terminal respiratory disease results from general impairment of nervous system function.

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APPENDIX I

No.	Age Years	Sex	Clinical Data	Weight in kg.	Head circumference in cm.	Weight of brain in grams.	Weight of cerebrum in grams.	Weight of cerebellum in grams.	Ratio of cerebrum over cerebellum	Summary of Pathological Findings
1	8	M	Retarded development, epilepsy, idiocy. Quadriplegia.	11·6	42	910				Generalized ulegyria. Induration more marked in occipital lobes. Corpus callosum thin. Fibrous gliosis. Plaques fibro-myéléniques in cortex. Ventricles dilated. Kyphoscoliosis.
2	3 4/12	M	Microphthalmia. Total lack of development. Idiot.		46·9	848				Atrophy of gyri in frontal lobes. Optic nerves, chiasma and tracts small. External geniculate bodies maldeveloped. Coloboma of eyes. Ventricles dilated. Broncho-pneumonia.
3	2 7/12	M	5 weeks' premature. Birth injury. Early onset of epilepsy. Spastic hemiplegia. Idiot.	10·4		680				Cerebral hemiatrophy, the smaller hemisphere showing widespread gliosis and cysts. Lateral ventricle dilated on the affected side. Broncho-pneumonia.
4	2	M	Retarded development. Imbecile.			760				Arbinencephaly. Fusion of frontal lobes. Abnormal position of basal ganglia. Absence of corpus callosum. Single dilated ventricle replacing the lateral and the III ventricle.
5	4 9/12	M	Neonatal jaundice. Gradual onset of spasticity of eyes. Arms hypotonic. Could hold objects. Idiot.	10						Ulegyria. Widespread induration of brain substance. Fibrous gliosis of cortex and subcortical formations. Marked dilatation of ventricular system. Broncho-pneumonia.
6	3 8/12	M	Quadriplegia following infantile gastro-enteritis. Athetoid movements. Total mental deterioration—idiocy.	12	43·7	840				Mild widening of sulci. Ventricular system somewhat dilated. Putamen narrow. Loss of cortical cells. Widespread fibrous gliosis.
7	7 6/12	M	Retarded development. Restless imbecile.	8·6	40·6	672				Unilateral arhinencephaly. Slight opercular defect. Simplification of pattern of gyri. Pneumonia.
8	5	F	Mongol. Low grade imbecile.	11·8	45·7	1,045				Brain stem and cerebellum small in relation to brain. Simplification of pattern. Smallness of frontal lobes and superior temporal gyrus. Inhalation pneumonia.
9	2 3/12	F	Mother had pulmonary tuberculosis. Epilepsy in early infancy. Spastic hemiplegia. Failure of mental development. Unilateral frontal lobectomy at 10/12. Idiot.	9·1	46·9	945 (incomplete)				Ulegyria. Brain stem and cerebellum small. Mild ventricular dilatation. Broncho-pneumonia.
10	1 10/12	M	Epilepsy at 3/12. Spastic quadriplegia. Idiocy.		25·4	205				Microcephaly, cerebellum being relatively large. Ulegyria. Marked ventricular dilatation. Widespread fibrous gliosis. Broncho-pneumonia.
11	1 1/12	M	Difficult forceps delivery. Enlargement of head noticed at 5/12. Hypotonic marasmic child. Idiot.	7·9	60·3					Marked obstructive hydrocephalus with dilatation of all ventricles. ? Fibrous adhesions of foramina of Luschka and Magendie. Broncho-pneumonia.

APPENDIX I—*continued*

No.	Age Years	Sex	Clinical Data	Weight in kg.	Head circumference in cm.	Weight of brain in grams.	Weight of cerebrum in grams.	Weight of cerebellum in grams.	Ratio of cerebrum over cerebellum	Summary of Pathological Findings
12	2 8/12	M	Mother had hypertension and toxaemia during pregnancy. Mongol. Imbecile. Pigeon chest.	4·8	43·1	874				Brain stem and cerebellum small. Pattern of gyri simplified. Mild ventricular dilatation. Broncho-pneumonia.
13	7 8/12	F	Microcephaly. Spastic quadriplegia. Optic atrophy. Idiot.	5·7	39·4	500				Microcephaly. Microgyria of cerebrum and cerebellum. Peri-ventricular calcification. Considerable ventricular dilatation. Broncho-pneumonia.
14	2 2/12	M	Gradual enlargement of head with epilepsy but no evidence of raised intraventricular pressure. Opisthotonos. Rigidity. Idiot.	8·6	53·7	1,520				Megalencephaly. Hyaline bodies in white matter and nerves. Gliosis of cerebral cortex. Broncho-pneumonia.
15	7 1/12	M	Mother had epilepsy in childhood. Elder brother stillborn. Neonatal jaundice, *not* caused by Rh incompatibility. Mongol. Imbecile.		43·1	1,006	894	112	8·1	Pattern of gyri simplified. Mild ventricular dilatation. Superior temporal gyrus narrow. Cyst of pineal body. Broncho-pneumonia.
16	3	M	Father had pulmonary tuberculosis. Mongol. Idiot.	9·1	45·7	940				Simplified pattern of gyri. Cerebellum and brain stem relatively small. Unilateral opercular defect. Superior temporal gyrus narrow. Fibrous gliosis of white matter without demyelination. Broncho-pneumonia.
17	5 11/12	F	3 weeks' premature. Blind and microcephalic. Epileptic idiot. Spastic quadriplegia.	6	35·1	315				Microcephaly with ulegyria. Cerebellum and both temporal lobes relatively large. Multiple cysts in white matter. Etat marbré of basal ganglia. Pigeon chest. Umbilical hernia. Post-cricoid web. Extensive fibrous gliosis Broncho-pneumonia.
18	4 6/12	F	Screaming attacks and epilepsy. Imbecile. Retrolental fibroplasia.	16·6	50·4	1,105				Sulci are widened. Simplified pattern of gyri. Moderate ventricular dilatation. Retrolental fibroplasia. Bilateral otitis media.
19	2	M	One of twins; the other stillborn. Retarded development. Idiot.	5·2	40·6	520				Ulegyria and granular atrophy. Rudimentary corpus callosum. Necrosis and haemorrhage into adrenals. Broncho-pneumonia.
20	24	F	Diplegia and retarded development. Mitral stenosis. Idiot.	22·1	46	990				Primitive pattern of gyri. Mitral stenosis. Lordosis and kypho-scoliosis of spine. Broncho-pneumonia.
21	2	M	Attempted abortion in early pregnancy. Confinement difficult and 3 weeks' premature. Spastic idiot	7·5	43	795				Arhinencephaly, porencephaly, microgyria. Lung abscess. Empyema. Bicuspid aortic valve.
22	11	F	Twin sister normal. Microcephalic idiot. Epilepsy and spastic hemiplegia.	22	44·5	570				Hemiatrophy. Microcephaly with marked ventricular dilatation. Microgyria. Hydantoinate gingivitis. Broncho-pneumonia.

APPENDIX I—*continued*

No.	Age	Sex	Clinical Data	Weight in kg.	Head circumference in cm.	Weight of brain in grams.	Weight of cerebrum in grams.	Weight of cerebellum in grams.	Ratio of cerebrum over cerebellum	Summary of Pathological Findings
23	Years 8	M	Retarded development. Ramstedt's operation for hypertrophic pyloric stenosis. Epileptic idiot. Adenoma sebaceum. Epiloia.			1,300				Tuberous sclerosis and candle guttering. Polycystic kidneys. Rhabdomyoma of heart.
24	8	F	Walked at 14/12. Began to speak, then gradually deteriorated mentally and physically. Epilepsy. Idiot.	15	45·7					Neurofibromatosis of optic nerves. Incomplete development of corpus callosum. Gliotic encephalopathy. Broncho-pneumonia.
25	3 6/12	M	Two stillborn elder siblings. Idiot. Splenohepatomegaly. Atypical gargoyle.			985				Cerebral lipidosis. Perivascular reticulation in white matter. Bronchiectasis. Broncho-pneumonia.
26	1 11/12	M	Marked retardation of development. Paralysis, epilepsy and choreiform movements.			860				Generalized fibrous gliosis of white matter without demyelination.
27	2 9/12	F	Retarded development. Epileptic idiot.		38	565				Microcephaly. Arhinencephaly. Fusion of the frontal lobes.
28	3 10/12	M	Mongol, imbecile with congenital heart defects.	12·5	50·8	1,220	1,110	110	10·1	Simplified pattern of gyri. Opercular defect. Moderate dilatation of ventricles. Superior temporal gyrus is narrow. Widely patent foramen ovale.
29	5 7/12	M	Epileptic idiot with spastic quadriplegia. Blindness.	9·5	46·5	462	315	147	2·1	Microcephaly with cystencephaly. Ventricles greatly distended. Funnel-shaped oesophagus. Hydro ureters and early Hydro-nephrosis. Broncho-pneumonia.
30	1 4/12	F	Malformation of head noticed at birth. Microcephalic idiot.	7·3	34	116	64	42	1·5	Microcephaly with greatly distended ventricles. Cerebellum relatively large. Malformation of the eyes.
31	3 9/12	M	Mother had contracted pelvis. Patient born after 7/12. Neonatal jaundice. Epilepsy commenced at 3/12. Imbecile.	8·2	44·5	975	835	140	6	Superior temporal convolution is narrow. Numerous cysts. Some ventricular dilatation. Broncho-pneumonia.
32	1 7/12	M	First cousin had spina bifida. Born with meningomyelocele. Hydrocephalus developed in early infancy.	11·4	66·5					Purulent meningitis. Meningomyelocele. Obstructive hydrocephalus. Arnold-Chiari malformation. Broncho-pneumonia.
33	2 8/12	M	Parents are brother and sister. Rh incompatibility established. Icterus gravis neonatorum. Blindness, epilepsy, idiocy.	9·1	45	428	312	116	2·7	Generalized cerebral atrophy with ulegyria. Marked ventricular dilatation. Cerebral lipidosis with moderate spleno- and hepatomegaly.
34	3 3/12	F	Mother had exophthalmic goitre and suffered from malaria during pregnancy. Aet 38 at birth. Mongol. Idiot.	9·1	44	918	832	86	9·7	Pattern of gyri simplified. Superior temporal convolution narrow. Moderate ventricular dilatation. Fibrous gliosis of white matter. Broncho-pneumonia.

APPENDIX I—*continued*

No.	Age	Sex	Clinical Data	Weight in kg.	Head circumference in cm.	Weight of brain in grams.	Weight of cerebrum in grams.	Weight of cerebellum in grams.	Ratio of cerebrum over cerebellum	Summary of Pathological Findings
35	Years 3	M	Mongol. Imbecile with congenital heart disease.	8·6	45·5	765	665	105	6·3	Simplified pattern of gyri. Softening in area of middle cerebral artery in one hemisphere caused by embolus. Fallot's tetralogy. Broncho-pneumonia.
36	6 10/12	M	A non-verified account of birth injury. Spastic idiot with epilepsy.	11·8	44	940	807	133	6·1	Simplified pattern of gyri. Moderate ventricular dilatation. Broncho-pneumonia.
37	4	M	Difficult confinement lasting 3 days. Forceps delivery. Retarded development. Epileptic fits commenced at 22 months. Imbecile.	10·9	47·5	1,072	935	137	7	Sulci slighted wasted. Kyphosis. Broncho-pneumonia.
38	2 2/12	F	Gargoyle. Cardiac hypertrophy. Imbecile.	9·5	46	843	735	108	7	Opacity of meninges. Ventricular dilatation. Perivascular reticulation in white matter. Cerebral lipidosis. Fibro-elastosis of endocardium. Broncho-pneumonia.
39	20	F	Mother psychotic. Epileptic idiot.			1,090				Porencephaly with loss of white matter in one temporal lobe. Suffocation with inhaled faeces.
40	4 8/12	M	Premature. Prolonged screaming attacks at 3 months. Epilepsy choroidal colobomata with pigmentation of retina. Spasticity with contractures.	8·6	50·5	252	210	42	5	Extreme ventricular dilatation with thinning of the cortex. Broncho-pneumonia.
41	2 6/12	M	Congenital meningo-myelocele. Gradual enlargement of head. Imbecile.	11·4	53·2					Obstructive hydrocephalus. Meningo-myelocele and Arnold-Chiari malformation. Retrolental fibroplasia. Unilateral hydro ureter.
42	7	M	Blindness with corneal opacity. Screaming fits. Idiot.	18·2	51	1,293	1,153	140	8·2	Nothing abnormal on naked eye examination. Fibrinous enteritis.
43	1 4/12	F	Neonatal jaundice. Epileptic idiot.	7·9	44	734	632	102	6·2	Atrophy of frontal lobes. Bilateral opercular defect. Mild ventricular dilatation. Extensive pulmonary collapse.
44	2	M	Mother had toxaemia and hypertension during pregnancy. One of twins, the other dying at birth with intracranial haemorrhage. Blind and epileptic idiot.	13·2	40·5	980	845	135	6·2	Ulegyria. Bilateral opercular defect. Moderate ventricular dilatation. Broncho-pneumonia.
45	14	M	Mother aet 46 at birth of patient. Mongol imbecile.	36·4	51·5	1,320	1,175	145	8·1	Mild opacity of meninges. Accumulation of brown pigment in globus pallidus and zona rubra. Broncho-pneumonia.
46	1 6/12	M	Forceps delivery. Meningitis in early infancy followed by epilepsy and increasing hydrocephalus. Imbecile. Terminal status epilepticus.	9·1	66					Marked obstructive hydrocephalus. Stenosis of the aqueduct of Sylvius with pin-point opening.

APPENDIX I—*continued*

No.	Age	Sex	Clinical Data	Weight in kg.	Head circumference in cm.	Weight of brain in grams.	Weight of cerebrum in grams.	Weight of cerebellum in grams.	Ratio of cerebrum over cerebellum	Summary of Pathological Findings
47	Years 14 5/12	M	Retarded development. Epileptic idiot. Adenoma sebaceum. Epiloia. Idiot.	16·4	48·5	1,197	1,045	152	7	Tuberous sclerosis of the brain. Pulmonary tuberculosis. Cystic lungs. Phakoma of retina. Broncho-pneumonia.
48	4 9/12	M	Mother had hypertension and toxaemia of pregnancy. Prematurity. Retarded development. Idiot.	10·2	47	994	862	132	6·6	Primitive pattern and atrophy of gyri. Marked opercular defect. Moderate dilatation of ventricles. Broncho-pneumonia.
49	16	F	Retarded development. Epileptic idiot.	21·4	51	1,297	1,140	157	7·3	Occipital lobe slightly indurated. Broncho-pneumonia. Gliotic encephalopathy.
50	5	M	Unconfirmed history of birth injury. Spastic and epileptic idiot.	13·2	44	900	745	155	5·1	Atrophy of occipital lobes. Ulegyria. Corpus callosum is thin. Moderate ventricular dilatation. Pulmonary emphysema, collapse and broncho-pneumonia.
51	8	M	Mother had mitral stenosis. Prematurity. Neonatal jaundice. Epileptic idiot. Terminal status epilepticus.	16·4	44·5	1,125	990	135	7·3	Ulegyria of occipital lobes. Fibrous gliosis of white matter.
52	2 1/12	F	Maternal uncle had epilepsy. Seven elder siblings stillborn and one mentally defective brother. Mother aet 39 at birth of subject who was 12 weeks premature. Icterus gravis neonatorum. Retarded development with epilepsy. Idiot.	6·8	44	889	765	124	6·2	Gliotic encephalopathy. Sulci widened. Mild ventricular dilatation. Opercular defect. Broncho-pneumonia.
53	11	M	Epilepsy commenced at 3 months. Spastic idiot with athetoid movements. Status marmoratus.	14·5	45	983	895	88	10·2	Opacity of meninges. Gliotic encephalopathy. Moderate ventricular dilatation. Broncho-pneumonia.
54	3	F	The second of the 2 elder siblings was stillborn. One miscarriage followed birth of subject. One month premature Idiot with congenital heart disease.	5	44	806	717	89	7·8	Simplified pattern and atrophy of gyri. Opercular defect. Moderate ventricular dilatation. Patent foramen ovale.
55	5 9/12	F	Progressive enlargement of the head commenced at 5 months. Optic atrophy. Failure of development. Idiot.	8·4	68					Marked obstructive hydrocephalus. Yellow discolouration of meninges. Fibrosis of meninges at the base. Possible sequel to posterior basal meningitis. Hairbrush skull. Broncho-pneumonia.
56	2 7/12	M	Mother aet 39 at birth. Subject 5th and last child. Mongol. Imbecile.	9·1	44·5	926	835	91	9·2	Simplified pattern of gyri. Opercular defect. Superior temporal convolution is narrow. Broncho-pneumonia
57	3 7/12	M	Mother had hypertension during pregnancy. Retarded development, athetosis and hemiplegia. Imbecile.	6·4	44·5	950	800	150	5·3	Ulegyria. Opercular defect. Mild ventricular dilatation. Broncho-pneumonia.

APPENDIX I—*continued*

No.	Age	Sex	Clinical Data	Weight in kg.	Head circumference in cm.	Weight of brain in grams.	Weight of cerebrum in grams.	Weight of cerebellum in grams.	Ratio of cerebrum over cerebellum	Summary of Pathological Findings
	Years									
58	3 8/12	F	Mother 48 at birth Three previous miscarriages. Ill health during pregnancy. Retarded development. Imbecile.	8·2	44	955	857	98	8·8	Some cerebral atrophy with moderate dilatation of ventricles. Large areas of pulmonary collapse.
59	8	F	Mother suffered from pulmonary tuberculosis and had low intelligence. One sibling has similar neurological condition. Retarded development. Epilepsy commenced at 3 years. Idiot.	14·5	49	955	860	95	8·	Some opacity of meninges. Mild cerebral atrophy with ventricular dilatation. Broncho-pneumonia.
60	2 7/12	F	Epilepsy since 2 months. Spastic idiot.	8·6	46	1,010	870	140	6·2	Considerable ventricular dilatation. Ulegyria. Opercular defect. Gliotic encephalopathy. Lobular collapse and broncho-pneumonia.
61	4	F	Born with naevus of face. Epilepsy commenced at 4 months. Idiot. Epiloia.	11·8	49·5	1,280				Typical features of tuberous sclerosis. Fibro-endothelioma of kidney. Purkinjeoma of heart. Broncho-pneumonia.
62	1 11/12	M	Unconfirmed Rh incompatibility. Neonatal jaundice. Retarded development. Idiot.	7·7	45	857	738	119	6·2	Cerebral atrophy with considerable dilatation of lateral ventricles. Pigeon chest. Broncho-pneumonia.
63	2 2/12	F	Mother had influenza at third month of pregnancy. Manual version of breech to vertex repeated 5 times. Fits commenced on 5th day. Idiot.	7·3		510				Microcephaly with relatively large cerebellum. Opercular defects. Considerable ventricular dilatation. Pigmentation in area of red nuclei. Broncho-pneumonia.
64	1 8/12	F	Rh incompatibility. Spastic idiot with choreoathetosis.	7·3		819	705	114	6·2	Some cerebral atrophy with mild ventricular dilatation. Gliosis of basal ganglia, particularly globus pallidus and red nucleus. Broncho-pneumonia.
65	1 4/12	M	Elder sibling had similar condition. Caesarean section. Failure of development. Idiot with toxic fits.		45·7	807	685	122	6	Atrophy of frontal lobes with ulegyria. Mild ventricular dilatation.
66	3	M	Brother of Case 65. Epileptic idiot with total failure of development.			915	795	120	6·6	Brain is similar to that of Case 65. Ulegyria and atrophy of frontal lobes. Mild ventricular dilatation.
67	12	F	Idiot with spastic hemiplegia.		45·7	717	587	130	4·5	Cerebral hemitrophy with marked unilateral ventricular dilatation. Ulegyria. Broncho-pneumonia.
68	2 8/12	F	Microcephaly with total failure of development. Idiot.			862	750	112	6·7	Simplified pattern of gyri. Broncho-pneumonia.
69	10 1/12	M	Instrumental birth, with unconfirmed birth injury. Spastic idiot.	15	44	847	700	147	5	Ulegyria. Considerable ventricular dilatation. Corpus callosum is very thin. Kyphoscoliosis. Pyelonephritis.

APPENDIX I—*continued*

No.	Age	Sex	Clinical Data	Weight in kg.	Head circumference in cm.	Weight of brain in grams.	Weight of cerebrum in grams.	Weight of cerebellum in grams.	Ratio of cerebrum over cerebellum	Summary of Pathological Findings
	Years									
70	4 3/12	M	Epilepsy commenced at 1 month. Spastic idiot with choreoathetosis and flexion contractures.	10		888	832	56	15	Some cerebral atrophy with mild ventricular dilatation. Gliosis of basal ganglia. Cerebellar sclerosis. Lateral sinus thrombosis. Broncho-pneumonia.
71	2 4/12	M	Mother aet 36 at birth of subject. Mongolism. Imbecile.	13·7	45·5	981	882	99	8·9	Simplified pattern of gyri. Mild ventricular dilatation. Peritonitis.
72	1 3/12	F	Mother epileptic. Microcephalic idiot with failure of development. Epilepsy.	7·7	41	555	427	128	3·3	Microcephaly with microgyria and marked ventricular dilatation. Opercular defect. Broncho-pneumonia.
73	56	M	Feeble minded. Attended special school. In employment all his life.			1,120	1,066	154	7	Some cerebral atrophy with mild ventricular dilatation.
74	2 3/12	M	Blind idiot with generalized follicular hyperkeratosis. Epilepsy.			679	565	114	5	Status spongiosus of cortex. Gliotic encephalopathy. Broncho-pneumonia.
75	5 9/12	M	Retarded development. Hypotonic idiot.	7·7	46	868	710	158	4·5	Cerebral atrophy with moderate dilatation of ventricles. Microgyria. Opercular defect. Broncho-pneumonia.
76	2 5/12	M	Mother aet 41. Caesarean section. Epileptic fits commenced at 6 weeks. Walked at 2 years—scissors gait. Has not talked. Imbecile.	8·2	47	961	827	134	6·2	Cerebral atrophy with mild ventricular dilatation. Corpus callosum thin in posterior third. Blood vessels thickened. Broncho-pneumonia.
77	1 11/12	M	An epileptic idiot with congenital heart defect, hypertrophic pyloric stenosis, hypospadias and supernumerary nipple.	6·8	42·5	805	704	101	7	Cerebral atrophy with considerable ventricular dilatation. Corpus callosum thin. Chronic purulent meningitis. Patent ductus arteriosus and interauricular septum. Broncho-pneumonia.
78	6	F	Father had pulmonary tuberculosis. Subject had T.B. meningitis treated with streptomycin aet 3. Mental defect and quadriplegia followed. Idiot.			747	647	100	6·5	Marked hydrocephalus. Meninges opaque. Calcified tuberculoma of hippocampus. Nephritis. Broncho-pneumonia.
79	3 11/12	F	Born 12 weeks premature, mother having had a fall 10 days previously. In oxygen tent for 4 weeks. Blind with cataract in right eye. Retrolental fibroplasia. Idiot.	6·4	46	1,062	939	123	7·6	Ulegyria of frontal lobes with opacity of meninges. Atrophy of optic nerves and chiasma. Microphthalmia and retrolental fibroplasia. Thrombosis of abdominal aorta. Sulphonilamide kidney.
80	4 7/12	F	Mother aet 38. Difficult confinement. Epileptic idiot.	13·2	44	821	707	114	6·2	Absent corpus callosum. "Balkenlangsbündel" present. Broncho-pneumonia.
81	4 11/12	M	Paternal 1st cousin microcephalic idiot. Mother had toxaemia of pregnancy. Screaming attacks in early infancy. Epileptic idiot with spastic quadriplegia and athetoid movements.	6·8	42·5	838	663	175	3·8	Brown discoloration of thickened meninges. Ulegyria. Corpus callosum is very thin.

APPENDIX I—*continued*

No.	Age	Sex	Clinical Data	Weight in kg.	Head circumference in cm.	Weight of brain in grams.	Weight of cerebrum in grams.	Weight of cerebellum in grams.	Ratio of cerebrum over cerebellum	Summary of Pathological Findings
82	Years 1 9/12	M	Mother had antepartem haemorrhage between 7-8 months of pregnancy. Forceps delivery. Microcephalic idiot with spastic diplegia.	5	40	535	429	106	4	Microcephaly with ulegyria and cystencephaly. Corpus callosum is very thin. Broncho-pneumonia.
83	2 11/12	M	Mother aet 50 at birth. Mongol. Epileptic idiot.	15·4	44·3	916	820	96	8·5	Simplified pattern of gyri. Opercular defect. Mild ventricular dilatation. Widely patent foramen ovale. Broncho-pneumonia.
84	3 10/12	M	Epileptic idiot with choreiform movements.	9·5	46	981	844	137	6·2	Ulegyria. Gliotic encephalopathy with moderate ventricular dilatation. Broncho-pneumonia.
85	2	F	Two maternal relatives had unconfirmed hydrocephalus. Prolonged labour. Meningo-myelocele with flaccid paraplegia.	8·2	54·5					Hydrocephalus. Meningo-myelocele. Arnold-Chiari malformation.
86	1 4/12	F	Epileptic idiot. Microcephaly.	9·1	34	238	184	54	3·4	Microcephaly. Considerable ventricular dilatation. Pachygyria. Spina bifida. Broncho-pneumonia.
87	4 3/12	F	Epileptic fits commenced at 4 months. Progressive deterioration. ? Schilder's disease.	10·2	48	1,029	892	137	6·5	Meningeal opacity. Gliotic encephalopathy with considerable ventricular dilatation. Broncho-pneumonia.
88	5/12	M	Mother had placenta praevia. Low segment Caesarean section. Developing hydrocephalus. Ventriculo-pharyngostomy. Skeletal malformation—absent terminal phalanges of fingers and toes.	3·2	38	577	540	37	15	Purulent meningitis. Cerebellar atrophy. Hydrocephalus.
89	11	M	Atypical gargoyle. Epilepsy. Gradual deterioration. Imbecile.	17·3	52·5	806	655	151	4·3	Meningeal opacity and pigmentation. Ulegyria with moderate ventricular dilatation. Cerebral lipidosis. Endocardial fibro-elastosis. Broncho-pneumonia.
90	1 3/12	M	Rh incompatibility. Neonatal jaundice. Umbilical hernia. Retarded development. Imbecile.	8·6	46·4	1,050	925	125	7·4	Gliotic encephalopathy with moderate ventricular dilatation. Opercular defect. Kyphoscoliosis.
91	27	F	Mongol. Imbecile.	50·3	50	1,035	921	114	8·1	Slight ventricular dilatation. Patent ductus arteriosus and interventricular septum.
92	3 9/12	F	Mother had toxaemia of pregnancy. Spastic and epileptic idiot.	6·4	45·5	863	772	91	8·5	Cerebellar atrophy, particularly on left side. Considerable ventricular dilatation. Corpus callosum is thin. Kyphoscoliosis. Inhalation pneumonia.
93	3	F	Mongol. Imbecile.	10·2	43·5	875	778	97	8	Brain shortened from before backward. Simplified pattern of gyri. Moderate ventricular dilatation. Broncho-pneumonia.

APPENDIX I—*continued*

No.	Age	Sex	Clinical Data	Weight in kg.	Head circumference in cm.	Weight of brain in grams.	Weight of cerebrum in grams.	Weight of cerebellum in grams.	Ratio of cerebrum over cerebellum	Summary of Pathological Findings
	Years									
94	7 3/12	M	Caesarean section. Epileptic and spastic idiot. Flexion contractures.	13·7	52					Obstructive hydrocephalus. Meninges over 4th ventricle are opaque and thick and foramina occluded. Broncho-pneumonia.
95	16	M	Spastic idiot.	25·5	47·5	825	738	87	8·5	Ulegyria with moderate ventricular dilatation. Broncho-pneumonia.
96	1 11/12	F	Forceps delivery. Epilepsy and spastic diplegia. Microcephaly. Idiot.	8·2	43	488	382	106	3·6	Microcephaly. Ulegyria and granular atrophy. Cystencephaly with considerable ventricular dilatation. Pulmonary collapse and inhalation pneumonia.
97	1 5/12	M	Right spastic hemiplegia.	9·1	42	552	450	102	4·4	Arhinencephaly. Fusion of frontal lobes. Talipes. Broncho-pneumonia.
98	3 9/12	M	Mother aet 39 at birth. Mongol. Imbecile.	9·1	46	996	902	94	9·6	Opercular defect. Mild ventricular dilatation. Pulmonary fibrosis. Inhalation pneumonia.
99	4 6/12	M	Unconfirmed phenylketonuria. An obese idiot.	19·1	51·5	1,360	1,228	138	9	Slight ventricular dilatation. Brain substance abnormally soft. Mild endocardial fibroelastosis. Broncho-pneumonia.
100	2 9/12	M	Epilepsy. Quadriplegia. Hypercalcaemia. Choreiform movements. Microcephaly.	9·1	41·3	825	720	105	6·1	Atrophy of optic nerves and chiasma. Lipoma of optic chiasma opercular defect. Opacity of endocardium.
101	10	M	Normal development followed by epilepsy at 2 years. Progressive deterioration. At death—idiot.	22·7	52	942	884	158	5·6	Symmetrical atrophy and cystic degeneration of both temporal lobes. Moderate ventricular dilatation. Abscess of pituitary. Broncho-pneumonia.
102	4	M	Psychotic features. ? Heller's dementia.		51	1,231	1,120	110	10·2	Nothing abnormal on naked eye examination. Broncho-pneumonia.
103	5 7/12	F	Mother was very "nervous" during pregnancy and used an abortifacient drug in early months. Epileptic idiot.	19·8	46	880	770	110	7	Pachygyria. Marked ventricular dilatation. Corpus callosum is thin. Broncho-pneumonia.
104	3 1/12	F	Parents are gypsies. Mongol. Imbecile.	10·9	43·7	826	755	71	10·7	Primitive pattern of gyri. Superior temporal convolution. Broncho-pneumonia.
105	1 10/12	M	Pneumonia in early infancy followed by recurrent fever of unknown aetiology. Idiot. Spina bifida.	8·2	48	1,155	1,015	140	7·3	Appearance of brain within normal limits. Histology not yet done.
106	5 1/12	M	Mother had a fall during 8th month of pregnancy, child born 2 hours later—4 weeks premature Idiot with choreiform movements	16·7	48	1,052	942	110	8·6	Corpus callosum is thin. Granulations are present upon the ventricular surface. Pleurisy. Broncho-pneumonia.
107	6 5/12	M	Maternal cousin had epilepsy and mental defect. Hypertrophic pyloric stenosis at 1 month. Oxygen tent for some months after birth. Epileptic idiot with choreiform movements	12·7	44	826	697	129	5·4	Considerable induration of posterior part of the brain. Gliotic encephalopathy. Ulegyria. Moderate dilatation of posterior parts of ventricles. Tower-shaped skull. Inhalation pneumonia.

APPENDIX I—*continued*

No.	Age	Sex	Clinical Data	Weight in kg.	Head circumference in cm.	Weight of brain in grams.	Weight of cerebrum in grams.	Weight of cerebellum in grams.	Ratio of cerebrum over cerebellum	Summary of Pathological Findings
108	Years 7 4/12	M	Gargoyle. Feebleminded.	15·0	56	1,162	1,009	153	6·6	Considerable atrophy of brain with moderate dilatation of ventricles. Cerebral lipidosis. Endocardial fibroelastosis. Spleno-hepatomegaly. Broncho-pneumonia.
109	6 7/12	F	One of 6 weeks premature twins; the other stillborn. Frequent prolonged screaming fits. Spastic diplegia. Microcephaly. Idiot.	10	42	487	366	121	3	Gliotic and cystic changes affecting an oval area situated mainly in one hemisphere and, partly, in the contiguous part of the other. Unilateral ventricular dilatation. Pulmonary collapse.
110	2 4/12	M	Severe hydramnios of pregnancy. Congenital cataracts. Opacity of cornea. Idiot.	7·3	47	1,018	895	128	7	Mild atrophy of frontal lobes with opacity of meninges over them. Some ulegyria. Moderate ventricular dilatation. Broncho-pneumonia.
111	3 6/12	M	Mongol. Idiot.	5·2	42·5	748	667	81	8·2	Primitive pattern of gyri with considerable ventricular dilatation. Widely patent foramen ovale. Broncho-pneumonia.
112	14	M	Mongol. Imbecile. Epileptic fits shortly before death.			1,168	1,044	124	8·4	Brain badly damaged by pathologist. Cerebral abscess.
113	7	F	Mongol. Imbecile.	18·2	47	995	886	109	8·1	Slight ventricular dilatation. Simplified pattern of gyri. Pulmonary fibrosis. Liver contains deposits of cholesterol. Broncho-pneumonia.
114	4 10/12	F	One brother feeble-minded. Epileptic mongol. Idiot.	7·3	46	925	831	94	8·8	Frontal lobes and superior temporal convolutions are narrow. Mild ventricular dilatation. Enteritis. Pulmonary collapse.
115	2	F	Mongol. Imbecile.	9·5	43	877	788	89	8·8	Frontal lobes and superior temporal gyrus are small. Mild ventricular dilatation. Defect in membranous part of interventricular septum. Hypertrophy of right ventricle.
116	1 7/12	F	Feeble minded mongol.	9·5	43	806	715	91	7·8	Smallness of frontal lobes. Mild dilatation of ventricles. Simplified pattern of gyri. Broncho-pneumonia.
117	1 2/12	F	Mongol. Idiot.	10·9	45	922	816	106	7·7	Smallness of frontal lobes and superior temporal gyrus. Bilateral opercular defect. Mild ventricular dilatation. Broncho-pneumonia.

NOTES TO APPENDIX I

Only deep or persistent neonatal jaundice was noted, slight jaundice was assumed to be "physiological". The abnormalities recorded in the appendix were obvious, doubtful features being omitted. Other commonly present conditions not mentioned in the appendix were wasting or contractures of limbs, curvature of the spine, undescended testes (present in almost all the male cases), smallness of endocrine glands and of other organs. The appendix and test include no comment on the size of the spinal cord. It did appear, however, that many of the spinal cords were small.

PERSONALITY TRAITS AND THE NORMAL ELECTRO-ENCEPHALOGRAM

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INTRODUCTION

CORRELATIONS have been noted between certain persistent personality traits on the one hand and certain patterns within the normal range of variation of the EEG on the other. Some of these correlations had been based on impressionistic assessments of personality, and the following paper contains the results of part of an investigation which was undertaken in order to check these assessments by a more objective method, and to define more precisely some of the qualities reported.

CASE MATERIAL

Forty male chronic alcoholics were studied. For this paper, an alcoholic was one who sought treatment admitting that he was no longer able to control his consumption of alcohol despite a desire to do so. Those in whom there was any suspicion of a concomitant psychosis or of permanent organic disorder were excluded from the series. Some patients were accepted in whom minor signs of organic disorder, such as tremor and slurred speech were present at the first interview, but absent at the second interview and subsequently. If they had not disappeared the case was dropped from the series. The alcoholic group was selected as being the largest group of patients available in this hospital in whom a high degree of accessibility and co-operation in testing might be expected.

The patients were examined ten days from the day of admission, this period being chosen because preliminary observations seemed to show that a significant degree of intellectual blunting which was present on admission had almost invariably cleared up ten days later.

METHOD

(a) *EEG Examination:* This was a standard procedure and has been described previously (McAdam and McClatchey, 1952). A refinement was that a band-pass filter (Dawe and Morris, 1952) was used to obtain a more accurate measurement of alpha activity than can be derived from visual analysis. Microvoltage, distribution and frequency were estimated in respect of the three most conspicuous wave-bands—theta (4 to 7 cps.), alpha (8 to 13 cps.), and beta (14 to 30 cps). Delta activity was not apparent in this series and activity at frequencies above 30 cps. could not be handled by visual analysis and was in any event very inconspicuous. In the case of the alpha rhythm, the filter referred to above facilitated the measurement of the alpha index, which expresses as a percentage the duration of time in which alpha activity is apparent; thus an alpha index of 100 would indicate continuous alpha activity, while an index of zero would indicate that alpha activity could not be detected at all. A comparable assessment was made in respect of other frequencies, but lacking non-visual methods the amount of activity could only be estimated and described as nil, trace, slight, moderate and high.

(b) *Psychological Assessment:* A Standard Psychological Interview was given to each patient in order to obtain a subjective qualitative assessment—which was, at the same time, capable of quantitative comparison. This technique consists of holding a conversation with the patient which is led over standard series of topics. These include for example: Interests, Relations to others, Attitude to past and future and Attitude to illness. Care is taken not to allow this interview to become merely a standard questionnaire. The patient is encouraged to elaborate his ideas, the only restriction being to keep the conversation within the topic under discussion. Everything the patient says is taken down verbatim as far as possible. Apart from the initial question, such as "What are you interested in?", or, "How do you get on with others?", the patient is simply encouraged by such remarks as "Yes?", "When?", "What next?", and so on. At the same time notes are taken about the patient's manner, speech and movements. The data from these interview notes are brought together to form a coherent personality description of each patient. These descriptions are then divided on to cards, each card containing a separate statement about or by the patient. These are then assessed by the method of Comparative Matching (Raven, 1948).

In addition to the Interview the Ranking Rorschach test was given (Eysenck, 1947). Here, each person has to place nine given responses to each card in his order of preference. Five of each nine responses are said to be normal and four "neurotic". The completely normal person would rank the four "neurotic" responses 6th, 7th, 8th and 9th; the completely "neurotic" would rank them 1st, 2nd, 3rd and 4th. The summed ranks of the four "neurotic" answers for each of the ten cards is the person's score. A completely normal person would have a score of $9+8+7+6=30$ for each card and a completely "neurotic" person would score $1+2+3+4=10$. On ten cards the normal person then has a score of 30 times $10=300$ and the "neurotic" person a score of 10 times $10=100$. All possible scores lie between these limits. Eysenck found the test to discriminate significantly between groups despite a great overlapping of individual scores.

(c) *Psychological Assessment and EEG Results*. To facilitate handling of the material, a dichotomy was made into cases with a low alpha index (from 0 to 50) and those with a high alpha index (51 to 100), in order to demonstrate whether or not there was any significant matching or contrasting of personality traits in the two groups. For the same purpose a second dichotomy was made between a low and a high index of high frequency (beta) activity; and a third between a very low (trace and slight) and a moderate amount of low frequency (theta) activity.

In twenty-nine cases EEG examinations were carried out at a later date and a fourth dichotomy was made between those cases whose alpha index remained constant and those in whom it had changed.

A product–moment correlation coefficient was obtained between the alpha index and the ranking Rorschach score.

Electro-encephalograph: Results. The EEG showed a curve of normal distribution in respect of the frequency, index and microvoltage. A correlation of $-0\cdot330$ was found between alpha frequency and alpha index ($P.>0\cdot05<0\cdot01$)

indicating a tendency for a low alpha frequency to go with a high alpha index and for a high alpha frequency to go with a low alpha index.

In eleven of the twelve cases where there was a change in the alpha index on subsequent testing, the change was from a low to a high index.

RESULTS

Personality Assessments

Table I shows the number of times each personality trait was noted, first, in the group of alcoholics as a whole, and then in each of the four EEG dichotomies.

The Alcoholic Group as a whole: A trait was said to be common in the group as a whole when occurring in at least ten patients (i.e. 25 per cent. N).

TABLE I

Analysis of Personality descriptions obtained from the Standard Interview

	Alcoholic Group	Theta Index		Alpha Index		Alpha Index on Retest		Beta Index	
		Normal	Excess	Low	High	Constant	Change	Low	High
It was said of the Patient that: N=	40	29	10	20	19	17	12	13	26
In appearance									
1. He was of medium height and build	10	8	1	6	3	2	5	3	6
2. He was of medium height and stout build	7	5	2	3	4	3	3	3	4
3. He was tall and of average build	6	4	2	3	3	6	0	2	4
4. He was tall and thin	3	2	1	0	3	2	1	2	1
5. He was short and of average build	4	4	0	2	2	1	1	1	3
6. He was short and stout	7	5	2	5	2	2	2	1	6
7. He was short and thin	3	1	2	1	2	2	0	1	2
Apart from height and build—in appearance									
1. He appeared younger or older than his age indicated	7	6	1	5	2	3	3	1	6
2. He had unusual behavioural characteristics	14	7	6	6	7	3	5	3	10
3. He tried to impress	3	2	1	2	1	1	2	1	2
In attitude									
1. He was co-operative	23	16	7	13	10	3	3	7	16
2. He wanted to talk about himself and his problems	6	5	1	5	1	0	3	2	4
3. He wanted to talk about the investigation rather than himself and was only superficially co-operative	9	7	2	2	7	1	0	3	6
In manner									
1. He was calm and at ease	14	10	4	7	7	6	5	5	9
2. He appeared to show some nervousness in being tense or trying to impress but relaxed as the interview proceeded	10	8	2	7	3	3	4	3	7
3. He was definitely nervous and ill at ease	13	11	1	6	6	5	4	4	8
In conversation									
1. His speech was coherent	40	29	10	20	19	17	12	14	25
2. His speech was fluent	34	25	8	17	16	15	11	12	21
3. His speech was not fluent	6	4	2	3	3	2	1	1	5
4. He was talkative	17	13	3	7	10	9	3	7	10
5. He was talkative about himself	3	3	0	3	0	1	2	0	3
6. He was talkative about mental abnormality	2	1	1	2	0	0	1	0	2
7. He became talkative as the interview proceeded	2	2	0	2	0	0	2	0	2
8. He was not talkative	6	2	3	2	3	3	1	1	4
Of his interests									
1. His interests were limited due to his work or due to his drinking	12	11	1	8	4	5	4	4	8
2. He claimed he had interests but these were of a conventional nature	10	7	3	7	3	3	3	3	7
3. His main interest was in his work	9	5	4	3	6	3	3	3	6
4. He had an unusual hobby requiring effort	7	5	1	0	6	4	0	3	3
5. Although conventional his interests had some unusual features	2	1	1	2	0	1	1	0	2

		Theta Index		Alpha Index		Alpha Index on Retest		Beta Index	
	Alcoholic Group	Normal	Excess	Low	High	Constant	Change	Low	High
Patient said: N=	40	29	10	20	19	17	12	13	26
Of his occupation									
1. He owned his own business and dealt with people	**18**	13	5	**12**	6	7	6	3	**15**
2. He worked for someone else and was concerned with routine work	8	6	2	2	6	4	2	5	3
3. He was a doctor	6	5	1	2	4	3	3	5	1
4. He had no settled occupation	2	2	0	1	1	1	1	0	2
Of the time he had been in his present occupation									
1. It was a family business and he had always been in it	8	4	4	2	6	6	1	5	3
2. It was not a family business but he had always been in it	7	6	1	4	3	3	3	2	5
3. He had not always been in his present occupation	4	4	0	3	1	2	1	1	3
Of his attitude to his occupation									
1. He expressed definite liking for his work	8	7	1	5	3	3	4	2	6
2. He wasn't altogether satisfied or expressed dislike	7	4	3	1	6	6	1	6	1
3. He didn't express any definite opinion	1	1	0	1	0	1	0	1	0
Of his relation with others									
1. He claimed he got on very well with others	9	7	2	6	3	2	6	2	7
2. He claimed he got on very well with others but contradicted himself	10	8	1	7	2	4	2	2	7
3. He was about average in getting on with others	11	6	5	3	8	7	1	4	7
4. Being shy interfered with his relations to others	8	7	1	3	5	3	2	5	3
Of his attitude to being alone or being with others									
1. He preferred being alone	10	8	2	2	8	6	2	6	4
2. He did not mind being alone or with others	13	9	4	7	6	7	4	5	8
3. He didn't like being alone	8	5	2	6	1	4	1	0	7
His attitude to his past life									
1. He claimed he had had a happy life—despite various circumstances	13	10	3	5	8	6	5	4	9
2. He admitted to periods of happiness and unhappiness	5	2	3	1	4	3	0	4	1
3. He had not been happy	9	8	1	5	4	4	4	4	5
4. He tended to evade the point and suggested a general attitude of discontent	13	9	3	9	3	4	3	1	11
Of the causes of his alcoholism									
1. He tended to blame someone else—usually his wife, for his drinking	11	10	1	9	2	4	5	3	8
2. His drinking was just habit or arose from boredom	15	11	3	6	8	4	6	4	10
3. His drinking developed because of worry	13	8	5	4	9	9	1	6	7
4. He denied that he was alcoholic	1	0	1	1	0	0	0	0	1
Of his attitude to his alcoholism									
1. He was going to stop drinking altogether	19	16	3	10	9	6	6	5	14
2. He wanted to stop but wasn't confident of his ability to do so	4	3	1	3	1	2	1	2	2
3. He did not want to give up drinking entirely	7	3	4	2	5	5	3	4	3
4. He was undecided	5	4	1	4	1	1	3	0	5
Of his memory and concentration									
1. There was no impairment in his abilities	17	11	6	10	7	9	4	5	12
2. His memory and concentration had suffered	23	18	4	10	12	8	8	8	14
Of his feelings at present									
1. He felt quite happy	14	9	5	5	9	4	4	3	11
2. He felt more contented but not very confident about the future	10	6	4	4	6	7	1	6	4
3. He felt depressed over his illness	14	13	0	9	4	5	6	4	9
Of his fears and worries									
1. He had no fears or worries	11	9	2	9	2	4	4	1	10
2. He was a little apprehensive	9	6	3	5	4	3	4	4	5
3. He had a definite fear which troubled him	13	9	4	4	9	8	3	7	6
Of his determination and will power									
1. He was strong-willed	14	12	2	9	5	4	6	4	10
2. He was generally strong-willed but with exceptions—mostly alcohol	8	5	3	5	3	5	3	3	5
3. He was about average in will power	5	3	2	3	2	3	1	1	4
4. His will power was variable—being strong in some respects but not in others	6	5	1	1	5	3	2	4	2
5. He was not strong-willed	5	3	2	1	4	2	0	1	4

In the Table each of these common traits when collected together gives the traits common to the whole group of alcoholics studied. From the Table it is immediately evident that, apart from the direct effects of alcohol such as tremors and memory impairment, the forty alcoholics studied do not present as a single group any typical personality. The traits found, and their frequencies, can only be summarized satisfactorily as follows:

It was noted of the patient that he was of medium height and build (10). He had unusual behavioural characteristics apparently resulting from his alcoholism, such as appearing rather bemused, or possessing hand tremors (14). In attitude he is co-operative; but in manner he may be calm and at ease (13), although he may show some nervousness in being at first tense or trying to impress, but relaxing as the interview proceeds (10). In conversation he is coherent (40), fluent (34), and even talkative (17).

He says of himself that his interests are limited, due to his work, or because of his drinking (12), while the few interests he claims are of a conventional nature (10), such as playing golf, rather than those requiring independent effort. He often owns his own business, where in an executive position he has to deal mainly with staff and clients (18). He says he is about average in getting on with others (11); alternatively, if he claims he gets on very well with people he will contradict himself (10). He says he does not mind if he is alone, or in company (13), and may even prefer being alone (10).

Concerning his past and future, he claims to have been happy in the past—despite various circumstances such as drinking and marital difficulties (13), although he may convey a vague general attitude of discontent and evade this topic (13). He says that apart from going back to his work and looking after his family, he has no plans for the future, although sometimes he says he is ambitious and wants a change (12).

His alcoholism he may explain in one of three ways: he may blame the behaviour of someone else, usually his wife's infidelity (11): he may deny any real cause and attribute it to habit or boredom (15); or he may blame his own worry—often over getting behind in his work (13). He frequently says he has suffered impairment in his concentration and memory—usually for recent events and names (23), although often he denies any such impairment due to alcoholism. He now says he feels quite well (14), or more contented but not very confident about the future (10); quite as often he says he feels depressed over his alcoholism (14). He may admit to particular fears and worries (13), but also he denies this (11). He regards himself as being strong-willed and determined (14), and maintains that from now onwards he is going to abstain completely from drinking (19).

From this summary of the Table, the one inference which can be made is that as a single class, the forty alcoholics studied show great differences, even contradictions, of personality traits rather than any common characteristics. Even when we extract the few statements which apply to approximately half the group as a whole, we find contradictions persist. In conversation they are coherent (40) and fluent (34), yet say that their memory and powers of concentration are impaired (23). They have their own business (18), but say that apart from going back to their work they have no plans (20). They maintain that in future they are going to abstain completely from drinking (19), but this has still to be put into action. In short, this comparative study of the Table immediately confirms the opinions collected by Sutherland, Schroeder and Tordella (1950) in their review of the literature, that the only thing alcoholics have in common is their drinking and its results.

Comparisons of personality traits with EEG dichotomies. A trait was said to be typical of one side of any dichotomy relative to the other side when the frequency of the trait was both (*a*) at least 25 per cent. of the total on that side of the dichotomy, and (*b*) occurred on this side with twice the frequency with which it occurred on the other side of the same dichotomy, allowing for inequalities in distribution. In the Table, traits satisfying these two criteria are underlined.

Inspection of the typical statements shown in the Table suggested that certain traits were typical of more than one EEG dichotomy. Statements typical of a low alpha index tend to be also typical of a high index of high frequency activity, of a change in alpha index, and of a low index of low frequency activity. Conversely, statements typical of a high alpha index tend to be also typical of a low index of high frequency activity, of a constancy of alpha index, and of a moderate amount of low frequency activity. It follows that the EEG dichotomies are themselves intercorrelated with respect to psychological traits noted as typical of them.

Referring to the low and high alpha index dichotomy, as it contained the overall largest number of typical statements, and taking each remaining EEG dichotomy one at a time, the chi-squared tables obtained showed the following results. It could be seen at once that statements typical of any given EEG dichotomy always occurred *on one and only on one* side of the alpha index dichotomy. For example, seven of the nine statements typical of a low index of high frequency activity are also typical of a high alpha index, but none of a low alpha index; whereas, by chance, the distribution would be approximately equal. The observed correlations could only occur by chance once in twenty cases.

Intercorrelations between typical psychological traits show in effect that we have a tendency towards an overall EEG dichotomy. We have Group A in which is found a predominance of high frequency activity (i.e. a high index of high frequency activity, a low alpha index, tendency for the alpha index to change, and very little sign of low frequency activity) contrasting with Group B in which is found a predominance of alpha activity (i.e. a low index of high frequency activity, a high alpha index which is constant in repeated records, and a relatively larger amount of low frequency activity). When the statements typical of these two groups are collected together it will be seen that they present consistent but contrasting personality types:

Group A. The person whose EEG contains a predominance of high frequency activity is typically of medium height and build, or short and stout. He appears younger or older than his actual age. In attitude, he is co-operative in that he wants to talk about himself and his problems and treats the interview as an opportunity for this. In manner he shows nervousness, being definitely ill at ease, tense, or trying to impress, relaxing perhaps as the interview proceeds. He complains that his interests have been limited by his work or his drinking, while his interests are of a conventional nature such as playing golf or motoring. He owns his own business, he deals with people rather than things, and expresses a definite liking for his work. Concerning his relations with others, although he claims invariably that he gets on well with people, this is contradicted by some added observation, while he admits that shyness interferes with his social relationships. On the other hand he doesn't like being alone. He says his past life has not been happy and he may evade the point—suggesting a general attitude of discontent to the past. For the future, he is ambitious—wanting to make a success of his career and will change his work if necessary. With regard to the causes of his alcoholism, he blames someone else—usually his wife and her infidelity, or else he denies a real cause and attributes it to habit or boredom. His present attitude to his drinking may be undecided, but when decided it is to abstain completely. He feels depressed over his drinking and how it has affected his life, but claims he has no particular fears or worries. He says he is strong-willed and determined.

Group B. The person whose EEG contains a predominance of alpha activity is typically tall and of medium build, with unusual behavioural characteristics apparently resulting from his alcoholism such as appearing rather bemused or possessing hand tremors. In attitude he is only superficially co-operative, and although talkative, he talks about the investigation rather than himself. He says his interests lie in his work, but he often has some unusual hobby such as painting or playing a musical instrument. He usually works for someone else in a more routine kind of occupation—clerking or engineering; if he does own his own business it is usually a family one he has inherited, not one he has achieved by his own exertions. He expresses dislike for his work, or at the best mentions certain unsatisfactory features in what he is doing at present. He says he is about average in getting on with people, and the point does not seem to be important to him, as he prefers being alone to being with others. In regard to his past life he admits to periods of happiness and unhappiness rather than encompassing the whole in a general attitude. He has no plans for the future. Excessive drinking arose in his case, he says, because of worry —often over getting behind in his work, and now he wants to give up drinking altogether. At present, he feels more contented, but he isn't very confident about the future. He has a definite fear which troubles him, which may be a fear of heights, or fires, or a less common one such as a fear of moths. He thinks his will power is variable—strong in some things and not in others.

Groups A and B therefore show a tendency to be differentiated on a wide range of personality traits. In fact the only thing they appear to have in common are fluency of speech, together with impairment of memory and concentration.

It may be objected that the differences between the two groups could be due to the amount of alcohol consumed or to the duration of the addiction. No correlation between these two factors and the grouping was found. Also, age of the patient and results of intelligence tests (Progressive Matrices and Mill Hill Vocabulary test) were not significantly different between the two groups.

Ranking Rorschach. The correlation coefficient obtained between alpha index and Rorschach scores was $=0\cdot411$. This figure could occur by chance less than one in a hundred times. It indicates that for the 40 alcoholics studied, the lower the person's alpha index, the more "neurotic", according to Eysenck, is his score on the Ranking Rorschach test.

DISCUSSION OF RESULTS

Saul *et al*. (1937, 1949) studied individuals in psychoanalysis and found a high alpha index to be characteristically associated with a passive, submissive, dependent, receptive attitude; avoidance of effort, responsibility and contact with other people; while a low alpha index was usually associated with a consistent, well-directed, freely indulged drive to activity. McAdam and McClatchey (1952) made similar observations in a group of aged psychotic patients when the EEG was sufficiently free from low frequency activity to avoid masking of the alpha and higher frequencies, and when there was no indication of dementia of the senile or arteriosclerotic type. From a different aspect, Mundy-Castle (1953) found that individuals with "primary functioning", (quick, impulsive, variable and highly stimulable) possessed relatively high alpha frequencies, while the "secondary functioning" were slow, cautious, steady and had relatively low alpha frequencies. The latter group seems to show affinities with the groups referred to above, in whom "passivity" was a feature and in which a high alpha index was characteristic, and the connection between the two types is also shown in the correlation we have noted between a low alpha frequency and a high alpha index.

The present study once more shows a tendency for a clustering of certain personality traits and EEG patterns. The dichotomy of activity-passivity is substantiated and appears to be correlated with the whole range of EEG activity, rather than of any one waveband. Further, this activity-passivity dichotomy would appear to express a more general dichotomy of personality which many workers have described from their different points of view. It includes that of extraversion-introversion (Jung, 1938) and cyclothymia-schizothymia (Kretschmer, 1925) to mention only two of the more well-known variations upon this theme. Despite differences and contradictions, there appears to be a fundamental dichotomy which can perhaps be best described as an opposition between a generally objective, active state in which awareness tends very often to be confined to or directed at certain aspects of the external world; and a generally subjective, passive state in which there is less direction, but awareness of a wider field, not necessarily confined to the external world.

The observed correlation between the Ranking Rorschach test and low alpha index indicates that the latter may have some relation with Eysenck's "neuroticism". Williams (1939) and others have shown that attention diminishes the amount of alpha activity. The comparative study of the information obtained from the standard interview in our material demonstrates that the individuals with low alpha indices were typically those for whom the chief interests were work and conventional hobbies such as golf and driving a car. Concentrated on work and conventional external pursuits, these patients seemed unable to relax, but on learning to do so, began to approach the class of patient who had a high alpha index and a typically wider range of interests.

This raises the question of the applicability of the concepts of "extraversion" and "cyclothymia" to our findings. Much more intensive work is needed on a small group of patients to clear up the problem of this relationship. There is, for example, at least a possibility that the "extraversion" of the chronic alcoholic is a neurotic simulation of healthy extraversion.

The present comparative study of forty selected alcoholics demonstrates the value of the technique employed for dealing with interview material.

SUMMARY AND CONCLUSIONS

(1) Personality traits of a group of alcoholic patients were obtained from a Standard Interview and compared with EEG tracings.

(2) This group did not present any typical personality picture of the alcoholic but rather indicated that apart from their drinking and its effects alcoholics have little in common.

(3) A dichotomy of personality traits was obtained which appears to be related to the EEG tracing as a whole and not to any one frequency index.

(4) A grouping of qualities suggesting extraversion is apparently related to a predominance of high frequency activity in the EEG, and introversion to a predominance of alpha activity.

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AN EXPERIMENTAL STUDY OF THE INHERITANCE OF INTELLIGENCE*

By

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Although the development of factor analysis has led, at least operationally, to more precise description of the field of human cognition, controversy as to the nature of intelligence has not ended, although there has been a marked narrowing of the differences between extremes of view. On the one hand, the monarcheal, or single factor idea, has been superseded by Spearman's two factor theory which has in turn been extended to the consideration of group factors. On the other hand, the multifactorial approach has been narrowed and refined by Thurstonian Multiple Factor Analysis. The primary Mental Abilities described by this method were found to be intercorrelated giving rise to a second order factor which Thurstone has suggested, may be not unlike Spearman's "g". Despite this basic disagreement as to the nature of the variable under consideration, results obtained have led investigators to almost complete agreement that what they have measured as intelligence is largely genetically determined.

However, the problem of determining the effect of inheritance upon the several primary mental abilities has not been reported upon. These abilities would seem to offer the most clear-cut operational definition of intelligence available to date. This question of relative genetic determination of the various primary mental abilities can be encompassed in an experiment framed to yield information central to the problem of whether intelligence is a complex of genetically determined primary abilities which have in common only the correlated effects of environmental additions to their basic form: or whether, like Vernon's group factors v:ed and to a lesser extent k:m, they are the sum of an underlying "g" and a narrower "group" ability which is educable.

Thurstone found his ability measures to be intercorrelated, giving rise to a second order factor. If this second order factor is comparable to Spearman's "g", it would follow that intelligence could be regarded as a core of "g" upon which environmental influences impose a consistent though diverse pressure leading to the relative hyper-development of certain facets of ability.

Under these circumstances, second order factor score estimates should show a greater degree of genetic determination than any single ability score and we may investigate the following hypotheses.

Hypothesis I: The second order factor derived from primary mental abilities test scores is in large part determined by heredity, and such individual differences as appear with respect to it cannot be accounted for in terms of environmental influences.

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Hypothesis II: The second order factor score will be determined by heredity to a greater degree than any of the primary mental ability scores which contribute to it.

The method of twin study used in this investigation is one that has been used in a very large number of previous studies. In this method, differences found between identical twins being due to environment alone, are compared with differences between fraternal twins which are due to heredity and environment combined. Thus, where a marked discrepancy in difference scores is found between groups (identical twins showing less difference than fraternal twins), the influence of heredity is predominant. Where there is little discrepancy in difference scores, inheritance does not function in a causative role.

The twin method was pioneered in the 1883 study by Galton reported in Newman, Freeman and Holzinger (1937). Galton found that twins who were very much alike as children did not tend to become less alike, nor did twins who were unlike as children tend to grow more alike through living together. From this he concluded that environmental effects produce little change in physical and mental make-up which must, therefore, be mainly inherited.

Thorndike (1905) used an interesting method in carrying out the first twin study to employ psychological tests of the modern sort. These were tests which, on *a priori* grounds, opposed tasks which would be little modified by educational background and learning, to those in which learning played a major part. Finding no closer similarity in the latter than in the former, he concluded that the observed similarities were due to inheritance.

By 1924, Merriman (1924) was able to use standardized tests such as the Stanford Binet Scale and the Army Beta. He found much greater similarity between like-sexed twins than between unlike-sexed twins; results which were later confirmed by Wingfield (1928) and Hirsch (1930) in similar studies.

Further studies by Tallman (1928), Holzinger (1929), Herman and Hogben (1933), Byrns (1934) and Newman, Freeman and Holzinger (1937) have established that the level of correlation between intelligence test scores of identical twins is generally above ·90, whereas correlations for fraternal pairs tend to be lower, ranging upwards from ·50 (Hirsch, 1930; Merriman, 1924; Newman, Freeman and Holzinger, 1937; Wingfield, 1928; Eysenck and Prell, 1951).

Although in the reported studies many tests of general intelligence have been used and their scores have been shown to be affected by inheritance, no presently published study has gone a step further and sought information regarding the degree of inheritance of general intelligence as defined by factor scores. Another unanswered problem arises in connection with the relative genetic determination of scores on the Primary Mental Abilities Test. These scores are intended by Thurstone to represent factor scores and have been used as such in this investigation.

This emphasis on the use of factor scores rather than individual test scores is considered essential in view of a criticism brought forth by Eysenck and Prell (1951). It seems requisite to discuss this criticism which bears upon twin studies of intelligence. They state: "Unless we can analyse the total variance of a test into its constituent parts, and measure these parts separately, no scientifically tenable conclusion can be drawn from the data."

They draw this conclusion by pointing out that the total variance of a test comprises general factor variance, group and specific factor variance and error variance. Assuming that more or less equal proportions of the variance are due on the one hand to the general factor variance, and on the other hand to group and specific factor variance (error variance being disregarded), it follows that equally high inter-twin coefficients could result either if the general factor alone is completely determined by inheritance; if the group and specific factors alone are completely so determined or if both are genetically determined to an intermediate degree.

By the use of factor scores and scores from the P.M.A. "factor" tests in this study, the above difficulty is avoided.

The sample was drawn from four Metropolitan Boroughs in South London. This was done with the co-operation of the London County Council, who wrote to Headmasters of all the L.C.C. Secondary Schools in the Boroughs of Camberwell, Southwark, Lambeth and Lewisham, requesting a report of any twins on their registers.

In this way 102 pairs of twins were located. The parents of 87 of these pairs were contacted by letter requesting permission to test the twins at the Maudsley Hospital. Permission was granted by the parents in the case of 59 pairs, from which group 56 pairs were subsequently tested. Data concerning the age, sex and ovularity of this group are summarized in Table I.

TABLE I

Age distribution, zygosity and sex of the experimental group

	Number of Cases			
	Female		Male	
Age in Months	Identical	Fraternal	Identical	Fraternal
140–149	1	1	1	0
150–159	3	2	3	1
160–169	4	4	3	8
170–179	4	3	4	4
180–189	1	3	2	0
Mean age	165·3	167·8	166·8	166·8
Standard deviation	11·8	11·1	12·1	6·7

The circumstances relating to the failure to test the 50 pairs not included in this study are presented in Table II.

TABLE II

Twins referred but not included in Experimental Group showing sex, zygosity and reason for non-inclusion

	Female			Male			
	Ident.	Frat.	?	Ident.	Frat.	?	Total
Refused	0	5	1	1	2	0	9
Did not answer letter of request	1	1	0	1	3	0	6
Left school before testing ..	3	2	0	3	3	2	13
Not approached as sample complete	3	0	0	0	5	0	8
Accepted but not tested as sample complete	3	0	0	0	0	0	3
Tested but not included ..	4	0	0	0	0	0	4
Too young	2	1	1	0	1	0	5
Non-English speaking ..	0	0	1	0	0	0	1
One twin mentally defective	0	0	0	0	1	0	1
Total	16	9	3	5	15	2	50

There were 9 cases in which permission to test the twins was directly refused. There appears to be very little evidence in the present study for assuming that some common element determined these refusals and thus introduced a consistent bias.

Four pairs of identical girls were tested, whose results were not included as it was decided to include 13 pairs in each group. One of these four pairs was left out because testing was not completed, and the other three pairs were drawn out of the sample on a random basis.

One pair of girls were not approached because they could not speak English. Another pair, fraternal boys in this case, were not used because one of the twins was mentally defective. Leaving this pair out of the sample has undoubtedly reduced the intra-fraternal differences in intelligence which will be found. However, the tests were inadequate to deal with such a case and useful data could not have been obtained from a mental defect with the experimental battery.

The method of sampling through the schools has been criticized (Anastasi and Foley, 1949) as being subject to selective error. The selective factor here leads to an over-estimation of the closeness of relationship between results obtained by fraternal twins. This comes about since the twins most likely to be overlooked by the teachers are those fraternal twins who are quite dissimilar in appearance and behaviour.

A rough check on the adequacy of the sampling can be made by comparing the number of binovular and uniovular twins reported. Census figures indicate that some 65 per cent. of all twins are of the same sex. Since all unlike sexed twins are binovular, it follows that 35 per cent. of twins are unlike sexed binovulars. Assuming equal distribution of sex among binovular twins, 35 per cent. of twins will be like sexed binovulars. In our sample we dealt only with like sexed twins, so that the expected ratio of referrals would be 35 fraternal twins to 30 identical twins. From this we can determine the probability of a statistically significant sampling error. Of the 102 cases referred, ovularity was not established in five cases. There remain 50 pairs of fraternal twins and 47 pairs of identical twins, that is 48 per cent. of those referred are identical and 52 per cent. are fraternal. The expected frequency would be 46 per cent. identical and 54 per cent. fraternal. The χ^2 in this case is $\cdot 16$ and P greater than $\cdot 50$. The difference is clearly not significant.

However, this is a crude check and although the difference is not statistically significant, selection could still have a psychological effect in that very few extreme cases need be missed to produce unrepresentative results. Let us therefore consider the possible consequences of missing such extreme cases. To the extent that such a sampling bias is operative in this study, its tendency is to bring about a reduction in the difference between intra-fraternal and intra-identical correlations. The nature of the hypotheses is such that this error, if present can in no way contribute to their support.

However, when a sampling error exists it is helpful to know how great an effect it could be exerting on the data. A hypothetical model which will enable us to estimate its maximum possible effect, can be set up as follows:

Let us assume that we have obtained maximum correlation between pairs of twins in our sample.

We then discover that only 80 per cent. of the sample has been tested. Assuming more or less equal variance in the tested and non-tested groups, the maximum error that could result from this omission would occur when no correlation whatsoever existed between pairs in the 20 per cent. of the group which was not tested, negative correlation being ruled out on the grounds that positive correlations are to be expected between twins in intelligence and personality scores.

Using the formula $r = \sqrt{\frac{\text{predictable variance}}{\text{total variance}}}$

we can calculate the variance which could be predicted had the entire sample been tested.

Thus, $r \text{ (corrected)} = \sqrt{\frac{\text{percentage of sample tested. } r^2 \text{ (obtained)}}{\text{total variance}}}$

In the hypothesized case $r \text{ (corrected)} = \sqrt{\frac{80 \times 1 \cdot 00^2}{100}}$

$$\sqrt{\cdot 80}$$

$$\cdot 89$$

Thus, allowing for the maximum error attributable to the error of missing 20 per cent. of the sample in the hypothesized situation, we would effect a decrease in the value of r from 1·00 to ·89.

To apply this formula to the experimental sample of fraternal twins, we must estimate the number of twins missed by the schools. In the L.C.C. schools the possibility that twins could attend the same school and not be known as twins is extremely remote. Rather the oversight occurs when the twins are in attendance at different schools. Of the 102 pairs located, there were 12 pairs in which the twins were separated and registered in different schools. Of these, there were 8 pairs in which both twins were registered at schools in the area covered.

From these 8 pairs we can get an estimate of the number of fraternal twins missed by sampling through the schools.

Of the 8 pairs, 4 were, as they should have been, reported by both of the schools concerned. The other 4 were reported by one school only. Thus, of the 16 individuals involved only 12 or 75 per cent. were reported.

Although if each school reports 75 per cent. of its cases, and only one school need give notification for the pair to be located, so that the mathematical probability of non-notification is only 1:16; from a psychological point of view, the circumstances which render one school unaware that a student has a twin, have a greater than chance probability of also being operative in the case of his or her twin. For this reason paired missing would tend to occur, both of the pair being missed because their twinship was less evident than that of the other pairs. For this reason we must adopt the maximum figure of 25 per cent. since those unreported may all constitute pairs of twins.

From this we can estimate that instead of the 12 divided pairs reported we should have received notification of 16 pairs. In other words, had we been notified in all cases, 54 pairs of fraternal twins would have been listed.

The maximum reduction of the intra-fraternal correlations which could have resulted from the inclusion of the omitted cases can now be determined by the previously outlined formula to be ·04.

One further source of error in twin studies is pointed out by Anastasi and Foley (1949). This is the mis-diagnosis of pairs of fraternal twins who are extremely alike, as identical. This results in a dilution of the identical sample and tends to decrease the differences between intra-identical and intra-fraternal correlations. Here also the error, if present, would tend to work against the considerations lending support to the hypotheses.

The criteria used in this study to differentiate between identical and fraternal pairs of twins were the following:

1. Facial features.
2. General habitus.
3. Hair colour and distribution.
4. Iris pigmentation.
5. Shape of ears.
6. Teeth.
7. Standing height.
8. Weight.
9. Ability to taste Phenyl-thio-carbamide.
10. Blood groupings.
11. Fingerprints.

For criteria 1 to 6, a three-point rating scale of closeness of similarity such as that used by Eysenck and Prell (1951) was utilized. Criteria 7 and 8 were straightforward measures in inches and pounds. For the tasting test with phenyl-thio-carbamide the subject was handed two test tubes, one filled with water and the other with a 1 in 20,000 solution of P.T.C. He was asked to describe any difference in the taste of the two liquids. Blood grouping was done at the Lister Institute by Race and Sanger who have demonstrated (1950) how to estimate, on the basis of parental blood groupings, the probability that same sexed twins with the same blood groups are dizygotic. Fingerprint analysis was carried out by the Genetics Department of the Maudsley Hospital, using the complex Discriminant Function Score developed by Slater. Reports giving the probability of binovularity in each pair were returned.

Twin identification was carried on for criteria 1 to 6 by three judges who made independent assessments.

In the sample generally, there was little difficulty in distinguishing between fraternal and identical twins. The fraternal pairs, with one exception, were quite obviously unlike in appearance, and even in the much more difficult task of determining identicality, pronounced doubt was present in only one case. Thus on the basis of appearance alone only two cases offered serious difficulty in diagnosis. These two difficult pairs were readily classified on the basis of taste reactions to phenyl-thio-carbamide, blood groupings and fingerprints.

It is interesting to contrast this with the more objective measures provided by blood groupings and fingerprint analysis.

While all pairs identical in appearance had the same blood types, it was found that three pairs, classified by appearance, taste reaction to P.T.C. and fingerprints as fraternal also had homogeneous blood groupings. It transpired that this was a result of the marked similarity between the blood groups of the parents.

On the basis of fingerprint analysis Nixon reports a mis-classification of 13 per cent. of the identical pairs and 42 per cent. of the fraternal pairs and overlapping in 60·7 per cent. of the cases. He points out that the very low probability of obtaining so high a mis-classification of fraternal pairs using Slater's discriminant function, indicates that this particular sample of fraternal twins is atypically similar as regards fingerprints.

In summary, it seems that the best method of differentiating between identical and fraternal twins is to make use of several indices, for in cases in which one index fails there is most frequently unanimous agreement among the other measures.

The intelligence tests used were the Thurstone's Chicago tests for the Primary Mental Abilities for ages 11–17, and the Nufferno Tests of Intellectual Level and Intellectual Speed. The twins were tested in pairs at the Maudsley Hospital and tests of intelligence were administered in the above order. In all cases the tests were administered in early afternoon.

The P.M.A. Tests are in such general usage that it would serve no purpose to describe them here. The directions given in the Revised Manual (1949) were followed in administration and Thurstone's scoring methods were used.

The Nufferno Tests are as yet unpublished and a brief discussion of their rationale and general form might be useful at this point. The tests are devised to take into account the generally neglected fact that in attempting any problem a person may derive a correct answer, a wrong answer, or no answer at all. Since most intelligence tests are scored in terms of correct answers returned in given period, they yield composite scores involving these three types of behaviour in amounts which vary between individuals. To assess intellectual speed properly, time spent in arriving at unscorable solutions (i.e., incorrectly answered or abandoned items) must not be taken into account. Accordingly, the Speed Test was so devised as to give scores involving only time spent in producing correct answers.

The test is made up of letter series items such as those used in the Reasoning test of the P.M.A. battery, found to be of equal difficulty, that is items passed by the same percentage of standardizing groups. They are relatively easy having been passed by 80 per cent. of that group. Stress is laid on speed not only in the instruction when the subject is told to work as quickly as he can, but also when, at a signal given every twenty seconds, he circles the last item he has completed.

In scoring, intervals during which wrong answers have been returned are disregarded. The score is the average of the logarithm of the time in seconds taken to solve each item, this score being used because solution time was found to increase disproportionately to item difficulty, whereas the relationship between log time and item difficulty was found to be linear. The score so derived appears to be a unidimensional measure of intellectual speed, being independent of level (for at least the top 80 per cent. of the population) since the test items are of equal difficulty and being purified of the effects of time spent in obtaining unscorable answers.

The Power or Level test is made up of letter series problems in cyclical order of difficulty. The usual time limit is thirty minutes, the subject being told that he has ample time for the test and that the examination is to determine not how quickly he can work but rather, how difficult a problem he can solve. He is accordingly instructed to try as hard as possible to complete each item as he comes to it and to leave no problem undone until he is certain that he cannot answer it. In the present study the length of the battery limited the time available for the test to 20 minutes.

Speed does not effect the score to the degree that it does scores in most intelligence tests since a subject can obtain as high a score by completing only the first section of ten items as by attempting all of the fifty items in the five sections of the test. Beyond the first set of items the cycles attempted only increase the reliability of the estimate of intellectual level, as the score is the average number of items correctly completed in the sections attempted.

This score is regarded by Furneaux (1953) and by Eysenck (1953) as a composite one including, as well as a measure of intellectual level, an element of persistence, enhanced by the fact that time necessary to complete problems correctly increases markedly as item difficulty is increased. However, the test is no more at fault in this regard than other intelligence tests, and would appear to be a much better measure of level than any speeded test.

RESULTS

Age was found to correlate with the verbal fluency and total scores of the P.M.A., while bi-serial correlations were found between sex and the Furneaux level tests, the P.M.A. Number, Fluency, Space, and Reasoning Scales. Age and sex were therefore partialled out of the matrix using Garrett (1947), Formula 87.

$$r12\cdot3=\frac{r12-r13\ r23}{\sqrt{1-r^{2}13}\qquad\sqrt{1\quad r^{2}23}}$$

The correlations given in Table III are thus independent of age and sex.

TABLE III

Intercorrelations of the Intelligence Scores

	1	2	3	4	5	6	7
1. P.M.A. Verbal							
2. P.M.A. Number	·411						
3. P.M.A. Space ..	·396	·225					
4. P.M.A. Reason ..	·496	·425	·515				
5. P.M.A. Fluency	·583	·401	·225	·490			
6. P.M.A. Total ..	·741	·689	·617	·813	·734		
7. Furneaux Level ..	·348	·297	·490	·691	·286	·597	
8. Furneaux Speed	·369	·204	·232	·411	·352	·440	·269

These P.M.A. sub-tests (factor) and total scores were included, with the Nufferno Tests of Intellectual Level and Intellectual Speed in an inter-correlation matrix of 20 variables. Twelve of the variables in this matrix were measures of personality and are irrelevant to this discussion.

The total score included for the P.M.A. test was calculated according to the formula V+S+2N+2R+W in keeping with the practice outlined by Thurstone in the Test Manual (1949). The intercorrelations between the sub-test scores and this total score are spuriously high. The coefficients are Verbal ·734; Number ·689; Space ·617; Reasoning ·813; and Fluency ·734.

The total score was included to give a point of rotation for the intelligence factor. By such a procedure intelligence has been defined for this study as the Primary Mental Abilities total score as calculated in the above formula.

The Thurstone method of analysis as demonstrated in Thurstone (1947) was used and four factors were extracted.

The first centroid was clearly of a cognitive nature. It accounted for 20 per cent. of the variance. The loadings of the intelligence tests on this centroid were Verbal ·752; Number ·544; Space ·514; Reasoning ·704; Fluency ·675; Total ·902; Furneaux Level ·583; and Furneaux Speed ·486.

The second centroid which took up 6 per cent. of the variance appeared to be an autonomic factor loading on physiological measures.

The third factor accounting for 5 per cent. of the variance appeared to be a factor of general emotionality (neuroticism). No attempt was made to identify the fourth factor extracted, which accounted for some 3 per cent. of the variance and left insignificant residuals.

The first factor was rotated through the P.M.A. total score criterion. The positions of the remaining three factors were determined by rotating for simple structure. Six rotations were needed. The centroid and rotated factor loadings of the intelligence tests are given in Table IV.

TABLE IV

Centroid and Rotated Factor Loadings

	Centroid Loadings				Rotated Factor Loadings			
	F_1	F_2	F_3	F_4	F^1_1	F^1_2	F^1_3	F^1_4
1. P.M.A. Verbal	·752	·12	·08	—·18	·681	—·10	·24	—·22
2. P.M.A. Number	·544	·13	—·19	—·28	·608	—·02	—·09	—·14
3. P.M.A. Space	·514	·29	—·14	—·09	·573	·13	·07	—·01
4. P.M.A. Reason	·704	·34	—·40	·19	·781	·11	·08	·35
5. P.M.A. Fluency	·675	—·07	—·14	—·14	·630	—·25	·04	—·07
6. P.M.A. Total	·902	·27	—·33	—·17	·971	·00	·01	·01
7. Nufferno Level	·583	·24	—·28	·19	·614	·04	·11	·29
8. Nufferno Speed	·486	·18	·10	·21	·393	·01	·37	·10

Factor scores were computed in accordance with Lubin and Summerfield's (1951) square root method.

To compute intelligence factor scores, all of the intelligence test scores were used except the total score which had been used as a criterion of rotation for the intelligence factor. The Beta weightings derived for the tests used were: Reasoning ·313; Number ·241; Verbal ·208; Fluency ·186; Space ·177; Power ·114; and Speed ·001.

CONCLUSIONS

The first of the hypotheses is supported by the data to the extent that when the test scores are weighted in accordance with the second order loadings reported by the Thurstone's (1941), the intra-identical correlation for the weighted total score is ·754, whereas that for the fraternal sample is ·394 giving rise to an h^2 of ·594. When the scores are weighted on the basis of the regression equation derived from the factor loadings of the present analysis, the total score so obtained, has an intra-identical correlation of ·732 and an intra-fraternal correlation of ·406 and an h^2 value of ·549.

These h^2 values are lower than one would anticipate in the case of cognitive tests. However, as Eysenck and Prell (1951) point out, more reliance can be placed on the correlation coefficients than upon the h^2 statistic. According to Newman, Freeman and Holzinger (1937), the distribution of h^2 is very probably not normal. For this reason, it is not possible to assess the significance of differences between values of h^2. This fact makes it difficult to assess the evidence regarding the second hypothesis.

The class intercorrelations and the h^2 values for the P.M.A. tests and for the total and factor scores are given in Table V.

The fact that the h^2 values for all the total scores are considerably lower than those for the Verbal, Reasoning and Fluency test scores may be interpreted as support for the view that these abilities are determined to a greater extent by heredity than is the general factor to which they give rise. These results would indicate that in the tests having higher h^2 values than the total scores, group or specific factor variance as well as that contributing to the general factor is determined by inheritance.

A case can, however, be presented for the contention that the total and factor scores are more determined by inheritance than are the sub-scores.

As has been stated, the significance of the difference between values of h^2 cannot be determined, so that the differences found cannot be considered conclusive invalidation of the hypothesis.

Further, it will be noted that there is a very close correspondence in the rank order between the size of the h^2 for each of the tests and the size of the

TABLE V

Factor Saturations, h^2 Values and Beta Weights for Intelligence Tests

	Rotated Factor Saturations	Thurstone's 2nd Order Factor Saturations	Intra-Identical Correlation	Intra-Fraternal Correlation	h^2 Value	Beta Weights
Intelligence Factor Scores	—	—	·764	·443	·576	—
Verbal	·681	·715	·726	·145	·680	·208
Space	·573	·502	·630	·248	·508	·177
Number ..	·608	·399	·489	·449	·073	·241
Reason ..	·781	·630	·708	·188	·640	·313
Fluency ..	·630	·615	·734	·257	·642	·186
Total A* ..	·971	—	·583	·369	·339	—
Total B† ..	—	—	·754	·394	·594	—
Total C‡ ..	—	—	·732	·406	·549	—
Furneaux Speed	·393	—	·134	·372	—	·001
Furneaux Level	·614	—	·640	·309	·479	·114

* P.M.A. Total Score from formula V+S+2N+2R+W.

† P.M.A. Total Score calculated on the basis of the square of Thurstone's second order factor loadings.

‡ P.M.A. Total Score calculated on the basis of weights derived from the Experimental Group.

loading which Thurstone (1947) found the tests to have on the second order factor of intelligence.

It would seem to follow from this that since the tests showing the highest degree of genetic determination are contributing most heavily to the factor scores, the factor scores themselves should show a more pronounced degree of genetic determination than the contributing sub-test scores. In other words, it would seem that a total score weighted on the basis of these second order factor loadings would have a very high probability of producing an h^2 value in excess of the h^2 for any of the contributing tests. That such was not the case in this study may be due to the unreliability of the h^2 statistic. Another possibility is that error producing unreliability is not equally distributed as between the fraternal and identical samples. In this connection, the greater reliability attendant upon the increased number of items comprising total scores as opposed to sub-scores does not appear to affect the identical and fraternal correlation coefficients equally. Whereas the intra-identical correlations are not much enhanced, intra-fraternal coefficients are markedly increased.

In any case, aside from these considerations, it may be pointed out that the inter-identical correlations are higher for the weighted total scores than for any of the Primary Mental Abilities test scores. That this is not simply a reflection of increased reliability due to an increase in the number of test items is strongly suggested by the fact that intra-identical correlations for the total score calculated on the V+S+2R+2N+W formula is lower than are the coefficients for four of the Primary Mental Abilities Tests.

However, although evidence can be cited in favour of the hypothesis, it cannot, in view of the obtained values of h^2, be considered to have been established and the conclusion must be drawn that hypothesis two has not been supported.

Certain of the findings merit further consideration. The fact that Verbal Comprehension and Word Fluency Tests are found to be determined by inheritance to a larger extent than the other tests, would seem to call into question Vernon's (1950) suggestion that the principal group factor in intelligence, v:ed, is a verbal factor which is developed by education. It is also contradictory to Thurstone's (1947) view: "The growth of Verbal Comprehension is difficult to appraise because the estimation of this factor is more influenced by schooling and experience than some of the other primary factors."

The findings of the present study indicate that the Number, and to a lesser extent, the Spatial Factor, would be more readily educable than verbal or reasoning ability. One might speculate on this basis that good General Arts students, relying as they do on facility with verbal material, are born; whereas the mathematicians, statisticians, engineers and so forth must toil to earn their skills. Herein, too, may lie the stimulus of the avoidance reaction which statistical courses frequently evoke in the devotees of Psyche.

The relationship of the Furneaux Speed Test to the other tests in the battery is interesting. The speed and level tests yielded intra-identical correlations of ·134 and ·640 respectively, and intra-fraternal correlations of ·372 and ·309. The h^2 value for the Level Test is ·479 while that for the Speed Test would come out as a meaningless, negative value. This is apparently due to error. There is some restriction of variance in the scores of the identical sample on the speed test, but the F ratio between the variance for the identical and fraternal samples is not significant even at the ·10 level.

It appears that the speed test insofar as it is a measure of level for the age group tested does correlate with the tests of intelligence. However, when factor scores are calculated, it is found to contribute nothing toward the prediction of the weighted scores so that the factor scores are independent of speed.

The results indicate that very little, if any of the individual differences in speed, as measured by the test are due to inheritance.

SUMMARY

The Primary Mental Abilities Tests and the Furneaux Test of Intellectual Level and Intellectual Speed were administered to a group of 52 pairs of like-sexed twins between the ages of 12 and 15 years. The sample was evenly divided in terms of sex and zygosity. Test results were intercorrelated and the factor analysis was carried out using the Thurstone method. The first factor, accounting for 20 per cent. of the variance, was identified as an intelligence factor.

Factor scores were determined on the basis of the regression equation. h^2 values were calculated for these factor scores.

The first of the hypotheses put forward in regard to intelligence was supported by the data. The total score for the Thurstone Primary Mental Abilities Tests weighted in accordance with the factor loadings of the tests on Thurstone's second order factor and the total score weighted on the basis of the present analysis give h^2 values of ·594 and ·549 respectively. In each case the intra-identical correlation exceeds the intra-fraternal correlation, the difference being significant beyond the ·01 level of confidence.

The second hypothesis stated that the total score would be determined in larger part by inheritance than would any of the individual Primary Mental Abilities scores. The data did not support this hypothesis since the h^2 values of three of the Primary Mental Abilities tests—Verbal Comprehension, Space and Reasoning—exceeded those of the total scores.

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PSYCHOSIS AS A CAUSE OF MENTAL DEFECT

By

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It is recognized that the differential diagnosis between psychosis and mental defect is apt to present difficulties; and the presence of aments in mental hospitals and of psychotics in homes for the mentally defective, though often due to lack of appropriate accommodation, suggests that the diagnostic problem is not always successfully solved. Hitherto, when a certified defective has been found to be psychotic, it has generally been assumed that psychosis has supervened on amentia, defectives being regarded as more prone to psychotic upset than are persons of normal intelligence. The alternative proposition—that mental defect may on occasions be due to psychosis in youth—has received comparatively little attention. This study is an attempt to find out whether psychotic illness beginning in childhood is an important cause of mental defect.

One of the earliest writers to point out the importance of distinguishing between inborn and acquired mental defect was Weygandt, who in 1907 used the term "dementia infantilis" to describe cases of progressive mental deterioration in young children. He considered that the condition was due to a severe encephalopathy, but left open the question as to whether the cases belonged to the dementia praecox group. A year previously de Sanctis (1906) had introduced the term "dementia praecocissima" and suggested that the condition ought to be accepted as a cause of true mental defect. Heller (1908) described, under the term "dementia infantilis", patients who, following normal development until the age of three or four years, progressively deteriorated so as to be severely demented by the time they reached their teens. Kraepelin (1919) and Neustadt (1928) drew attention to the fact that dementia praecox beginning in infancy or childhood could produce a condition of *de facto* mental defect. More recently Greene (1930), Potter (1933) and Angus (1948) among others have drawn similar conclusions.

Earl (1934) described cases among low-grade mental defectives for whom he introduced the term "primitive catatonic psychosis of idiocy". These patients exhibited most of the classical features of catatonia but Earl regarded the condition as a psychosis arising in idiots, even though two of his patients had been diagnosed "dementia infantilis". The question which we have now to raise is whether, in some patients of this type, idiocy is caused by a psychotic process which also subsequently causes the catatonia. Were some of Earl's patients cases of psychosis beginning at an early age and progressing to a deteriorated catatonic state? Catatonia, after all, is comparatively common among schizophrenics; and schizophrenia, as Creak (1951) and others have shown, is not so infrequent in childhood as was formerly believed. If schizophrenia in the child behaves approximately as it does in the adult, then catatonia in childhood ought not to be excessively rare. Such cases would be likely to be sent to the mental deficiency institutions, for there is little accommodation elsewhere for juvenile psychotics, even suppose they were all recognized; and these children would in any case be legally certifiable as defectives. If committed, as children.

to the hospitals for defectives they would probably remain there as adults. One would, therefore, not be surprised to find, in the adults' as well as in the children's wards of these hospitals, a number of schizophrenics, of whom some would be catatonics while others would be at different stages of deterioration. Could this be a partial explanation of Earl's findings with regard to "catatonic psychosis of idiocy"? Could some of the cases have been more appropriately named "Idiocy due to catatonic psychosis"?

This hypothesis was investigated in a mental deficiency hospital by examining all the patients in a single villa housing medium- and lower-grade adult female defectives. (For administrative reasons a few epileptics of rather higher intellectual status were also living in this villa.) The results are shown in Table 1.

TABLE I

Villa for Low-grade Female Defectives

Diagnostic Groupings

With organic disease Total 26	Epileptics (including 1 Epiloiac)	19
	Mongols	3
	With abnormality of skull	3
	With congenital nystagmus and amaurosis	1
Without observed indication of organic disease	Subcultural Amentia	2
Total 15	Unclassified	1
	Psychotic	12

In this villa, then, 29 per cent of the patients were regarded as psychotic. In each case the clinical picture was indistinguishable from that of deteriorated schizophrenia. In reaching the diagnosis objective criteria were used exclusively, because only in one case was the patient preserved sufficiently to give any account of her thoughts and feelings. The status of the patients in respect of the criteria used, together with the degree of mental defect, are tabulated in Table II. ("Partial preservation" here means that in what appears to be a deteriorated patient certain functions are preserved—e.g. ability to knit, or play piano, preservation of toilet habits or ability to read.) It will be noted that nearly all the patients exhibited "other psychotic features". These included episodic violence, self-injury, refusal of food, mutism, classical verbigeration, etc.

TABLE II

"X" Villa—Psychotic Features

	KB	WC	PC	BA	ET	AH	AS	BT	DF	EH	AC	RJ
Seclusiveness	−	+	+	+	+	+	+	−	−	+	+	+
Deterioration	+	+	+	+	+	+	+	+	+	+	+	+
Mannerisms, Attitudes	−	−	+	+	+	+	+	+	+	+	−	+
Delusions, Hallucinations	−	+	+	?	+	?	−	?	+	−	−	+
Partial Preservation	+	+	+	+	+	+	+	+	+	+	+	+
Other psychotic features	+	+	+	+	+	−	−	+	+	+	+	+
Degree of Mental Defect	Imbecile	Imbecile	Imbecile	Imbecile	Imbecile	Imbecile	Imbecile	Imbecile	Imbecile	Imbecile	Imbecile	Imbecile

These results are, on the face of it, surprising; and one might have been tempted to wonder whether diagnostic facilities were at a particularly low ebb in the areas from which these patients were committed to hospital as "mental defectives". Yet a similar investigation in another hospital yielded comparable results. On this occasion Bender's (1947) criteria of juvenile schizophrenia were employed in examining ambulant but otherwise unclassified mentally defective boys of under 14 years. The results are shown in Table III.

TABLE III

Villa for Mentally Defective Boys under 14 Years

Diagnostic Groupings

Mongols	6
Paretics	1
Hydrocephalic	1
Microcephalic	1
"Subcultural"	7
Insufficiently investigated	14
Epileptic	4
Psychotic, with history of convulsions in early childhood only	2
Psychotic, with ? organic hearing defect	1
Psychotic, without history of epilepsy or signs of organic cerebral disease	6

Of the 14 in Table III who are grouped as "insufficiently investigated", most apparently belonged to the "subcultural" group, but in several of the remainder psychotic features were observed, and it is possible that some of them would have been labelled "psychotic" upon fuller investigation. The children in these villas were nearly all of the imbecile grade, patients classified as idiots being in other wards, in which there was the usual sprinkling of catatonic idiots. Among these "imbecile" psychotic children, as will be seen from the illustrative se records below, only occasional catatonic features were seen. The patients were perhaps more nearly akin to the hebephrenic type of adult schizophrenia, exhibiting such symptoms as mannerisms, impulsiveness, stereotypy of utterance and behaviour, and inappropriate and disjointed words or phrases.

A similar investigation in this hospital's "babies" ward—for children under 5 years—revealed no cases of psychosis. Nearly all the babies were idiots. The probable explanation was thought to lie in the fact that, in the absence of severe stigmata or clear signs of organic nervous disease in their children, parents would be unlikely to agree to committal to a mental deficiency hospital so long as there was any hope that the child might be merely temporarily retarded. Almost invariably the parents realize that the child is peculiar or mentally ill, but it is usually failure at school which first makes it clear to persons outside the home that the child is abnormal. Moreover, suppose juvenile schizophrenia were really a cause rather than a sequela of mental deficiency, then this absence of cases under 5 would be expected, since the disease would have to progress considerably before the child would be considered sufficiently retarded to be diagnosed as mentally defective.

From these findings, considered along with those of Earl, one might be tempted to draw three conclusions:

(i) That there is a not inconsiderable proportion of psychotics in some mental deficiency hospitals.
(ii) That psychotics are to be found among juvenile as well as adult certified defectives.
(iii) That catatonia tends to be found among idiots whereas, among imbeciles, psychosis, if present, is likely to be of hebephrenic type.

In other words, there appears to be not only a "catatonic psychosis of idiocy", but also a "hebephrenic psychosis of imbecility". Is there, to complete the story, a "simple schizophrenic psychosis of feeble-mindedness"? or can we say, simply "*schizophrenia beginning in childhood is a cause of mental deficiency. If severe and associated with much deterioration it causes imbecility or idiocy. If simple* (*or mild or early*), *it tends to produce feeble-mindedness.*"

EFFECTS OF THE SCHIZOPHRENIC PROCESS ON DEVELOPMENT OF INTELLIGENCE

Mental deficiency is a legal and social rather than a clinical concept, and the legal definition was framed with the idea of including patients who had suffered from a large number of different clinical conditions (from which schizophrenia is not excluded). The Mental Deficiency Act of 1927 says: "Mental Defectiveness means a condition of arrested or incomplete development of mind, existing before the age of 18 years, whether arising from inherent causes or induced by disease or injury." Observation of young psychotics indicates that some of the severe cases are reduced eventually to a condition in which the mind has not merely failed to develop but in which the child has become considerably demented at an early age. There seems little doubt that such patients can be regarded as suffering from an arrested development of mind. But can the milder cases of psychosis beginning in childhood be so regarded? Is it true to suggest that "development of mind" is liable to be "arrested" even in the early stages of childhood schizophrenia? We know that temporary disturbances in childhood from emotional upsets are compatible with the highest subsequent intellectual attainment and that very efficient mental function is manifest in certain adults between phases of frank schizophrenic illness. Nevertheless it seems worth while considering the hypothesis that even the milder psychotic processes may cause some degree of arrest of mental development.

Just as it is in general true that the degree of dementia in schizophrenia will depend on the duration and the severity of the psychosis, so, in children, we would expect that the earlier the psychosis begins the greater, if it runs unchecked, will be the retardation produced. If, as a result, the child becomes "defective", the degree of defect will be proportional to the duration and severity of the psychotic process. By the age of 16 the growth of intelligence has almost stopped. Before that age, it is suggested, psychosis may result merely in retarded mental growth. Thereafter, in proportion to its severity, it produces deterioration and dementia.

NATURE OF THE PSYCHOTIC PROCESS; RELATIONSHIP WITH EPILEPSY

We may now consider the nature of this psychotic process—whether it is, in fact, identical or analogous with schizophrenia as the term is usually understood (bearing in mind the fact that there is no general agreement as to either the boundaries or the aetiology of schizophrenia); whether it is an organic process; or whether both types of disease process are active at the same time in these patients. The writings of Kraepelin and de Sanctis, among others, would appear to favour the first view, while such as Weygandt regarded the condition as organic. Schilder (1935) took the view that the combination of schizophrenia and mental defect is extremely rare, but that "pictures which resemble schizophrenia in children are very often not schizophrenic but organic; they are schizoid reactions in connection with organic processes and defects of the brain. I assume as a matter of course that dementia praecocissima (de Sanctis) and dementia infantilis (Heller) have nothing to do with schizophrenia but are organic processes."

It is, of course, well recognized that organic cerebral disease—epilepsy, for example—can occasionally manifest symptoms very like those of the schizophrenic. Kennedy and Hill (1942) used the EEG to forecast the onset of overt convulsions in a case which had been diagnosed "dementia infantilis"; and Hill (1948) pointed out how frequent was the association between schizophrenia and epilepsy.

In the groupings of cases described above, patients with histories of fits were not included among the "psychotics" but were grouped with the other epileptics and regarded as cases of organic disease. There were, however, among the epileptics, a considerable number who manifested psychotic features. In these patients the fits usually began in infancy and ceased during the first decade. There was no constant relation between the time of onset of the fits and the beginning of the mental changes, though usually these were said to have begun later than the fits and to have continued and progressed after the fits had ceased. Often, in these cases, the psychotic features were indistinguishable from those of schizophrenia. Only one of many such cases is included in the histories given below, the clinical picture here being typical of catatonic schizophrenia. But because of the history of fits he would be grouped with the epileptics rather than the psychotics in the classification given above. In the majority of these "mentally defective" psychotics, on the other hand, there is no history of fits.

The literature on childhood psychosis has concerned itself mostly with clinical descriptions. Few physical investigations appear to have been carried out, and of the morbid anatomy little is known because this is not a killing disease. None of the cases described in the present paper has died, so we know nothing of the histological state of affairs inside the skull. The electroencephalograph has been used in only a few of these cases, but the graphs obtained showed no constant type of abnormality. In general, the records were not suggestive of epilepsy, nor of any known organic disease. However, only one or two of the electroencephalograms were regarded as "normal".

The possibility that this psychosis of defectives has an organic basis cannot, therefore, be excluded without much further investigation. In spite of the similarity of the clinical picture through a series of cases, there is no proof that we are not dealing with two types of pathology—an organic and a psychic. Nor can we be sure that a combination of the two is not responsible. Yet there do appear to be certain considerations which argue against the likelihood of an organic pathology being responsible in all cases: Of the 38 cases of catatonia of idiocy in Earl's original paper, 10 were mongols, 5 epiloiacs, and 8 had an "acquired cerebral lesion". But in none of the remaining 23, apparently, were there physical signs pointing to organic pathology. Similarly, among the patients alluded to in this present paper, there were many psychotics who showed no sign of disease of the central nervous system in spite of the severe mental changes which were observed. Congenital stigmata were absent, and it is a striking fact that these patients have, as children, a normal appearance in the great majority of cases and that their graceful dexterous movements contrast sharply with the clumsiness of the subcultural defective. Among them, moreover, it is exceptional to find a family history of either organic disease of the central nervous system or of mental deficiency; whereas it is not uncommon to find a history of eccentricity or insanity. It would also appear that, if this disease has an organic pathology, it might be expected to end fatally after a number of years—for arrest is not the usual outcome in an organic degenerative disease of the central nervous system. But these patients do not die young. It is, of course, more than possible that we are dealing with a psychosis supervening in a personality rendered vulnerable by a previous organic disease of the brain.

This would be analagous with the psychoses of senility or arteriosclerosis. But, in the defective psychotic, the question would then remain, "why does the organic condition become arrested rather than proceeding to kill its victim?"

If, on the other hand, the condition does not have an organic basis as the term is usually understood but is to be regarded as identical with schizophrenia as seen in those who are not defective, then there are criteria which it ought to fulfil:

1. Allowing for age differences, the clinical picture should show common features of schizophrenia.
2. There should, in general, be deterioration leading to dementia.
3. There should be an abnormality in the quality of the affective life of the individual.
4. There should be cases in which improvement occurs and cases in which the deterioration becomes arrested leaving the patient partially demented but without evidence of an active psychotic process.
5. It should be possible to find cases in every stage of the schizophrenic process, corresponding with what occurs in the adult. Thus we ought to be able to show the mild type which never needs hospital treatment; the type which seems to recover after one or two hospital admissions; the very slowly progressive simple type; the fulminating catatonic type; and so on.

We ought, in fact, to be able to show, amongst our mentally defectives, a graduated series starting from the "catatonic psychosis of idiocy" at the bottom and working through successively less deteriorated types until we reach, at the top, the dreamy, schizoid person whose social defect is due to his inability to interest himself in the realities. Perusal of the abbreviated case notes below will show to what extent these criteria are fulfilled in the patients described.

I do not wish to imply that schizoid features in childhood necessarily culminate in mental defect; nor on the other hand that schizophrenia is the only type of emotional disturbance which can produce retardation. If catatonic schizophrenia is a cause of idiocy and early, simple schizophrenia a cause of feeblemindedness, one might expect to find scholastic retardation amongst children who, though disturbed, do not merit a label of psychosis and of course the depressed or anxious child whose retardation disappears dramatically in response to amelioration of the domestic situation is familiar enough; so is the child of average intelligence whose emotional reaction to being placed in a class of superior children results in his appearing much duller than he really is. One also sees children whose "blind spot" for one particular subject at school arises from an emotional situation and children of borderline intelligence who become legally "defective" because of a super-imposed anxiety state. There is no doubt that depression is a cause of impaired mental efficiency in the adult; does it not act similarly in children? Is not a neurotic situation the explanation of some of the educational "blind spots" and some of the unexpected "scatter" in mental testing? The implication would seem to be that emotional upsets affect the development and functioning of intelligence in the normal child as well as in the educationally subnormal and the mentally defective.

Discussion

Whilst it cannot be claimed that the evidence in this paper is in any way conclusive, yet it is perhaps suggestive that schizophrenia should be considered not merely as a differential diagnosis but also as a possible aetiological factor in mental deficiency. If schizophrenia were found to be a not unimportant cause of mental deficiency, then, in view of the extremely early age at which the psychotic process begins in some of these cases, there might be grounds for reconsidering the question of the importance of the constitutional as opposed to the environmental causes of schizophrenia. If nothing else the findings seem to emphasize the need for further study of the relationship between epilepsy, schizophrenia and mental defect by means of clinical, psychological, metabolic and electrical methods. Also, they indicate that we may perhaps revise some of our present opinions about the possibility of treating mental deficiency; and they show how important it is to be extremely suspicious of the term "mental deficiency" when used as a clinical diagnosis.

Case Histories

D.E. Aet 16. Male.

Family history. Nil relevant.

Personal history. No abnormality during mother's pregnancy or labour. "Normal at birth—a lovely child up to nine months." Early milestones normal. First words at ten months but never any speech beyond short phrases like "stop it" or "lie down". At seven months he was pulled out of his pram by older brother who was "very jealous" of him. He was unconscious for two hours after this, and was "quiet and serious and nervy" for a few weeks. He seemed to recover completely but at one year he began to have typical petit mal attacks which increased in number up to sixty in twenty-four hours at age four. They then progressively became fewer but were replaced by grand mal, so that by the age of seven he was having no petit mal but about three grand mal attacks per month. He had no fits between the ages of eleven and sixteen, but has recently had two grand mal attacks.

Habits. He was "almost clean" by twelve months; thereafter his habits "gradually deteriorated".

Behaviour. He loved music and up to the age of about eight he would dance and sing. He never played with other children nor with toys except his tricycle. He liked to spin himself around and let dirt trickle through his fingers. He pushed his mother's hand to switches, etc. rather than operate them himself. Up to the age of about eight he seemed normally affectionate towards his family. Thereafter he showed progressively less interest in them, became more remote and adopted strange attitudes. As time went by, stereotyped repetitive movements such as head rocking and soft handclapping occurred.

Illness. None serious until age eleven when he suffered from infective hepatitis. In the same year he was found to have tuberculosis of lungs and bones. This has slowly improved in spite of very little treatment being possible owing to his mental state.

Present condition. He sits mostly in the "foetal attitude" –head bowed, knees drawn up, but adopts other bizarre attitudes from time to time. He makes no response to people, but shows some cunning in hiding food and faeces, with which he plays and smears. He tears up clothing. His only toys are pieces of plastic tape, which he waves about or licks or eats. From time to time he looks up as though hallucinated. He is silent apart from occasional screams.

B.M. Aet 17.

Family history. Mother committed suicide by hanging when patient was two months old. She was forty-two. Her father and uncle are said to have been psychotic, and on the other side, her mother and aunt are said to have been eccentric and hypochondriacal.

Sibs. Two boys, both older than the patient and both "above average" in intelligence.

Otherwise nil relevant in family history.

Personal history. Pre-natal: Mother was physically well during pregnancy, but mentally very disturbed during the last month. Patient was taken away from her after a few days and brought up by a stepmother until admission at the age of ten years.

Natal: Birth is said to have been normal.

Post-natal: *Milestones*—Sat up at four months, having lifted her head "almost from birth". Stood alone at ten months, walked at about twelve months, first words at fourteen months, but few spontaneous meaningful phrases. She was potted from the first and became clean in habits almost at once and has remained so.

Father states that she was normal until about two years and won first prize in a baby show at about twelve months. Soon after that she began to have screaming attacks, but she never had a convulsion.

Illnesses. Rubella only.

Speech. She was saying short phrases midway through her third semester but then stopped and until her admission to hospital she is said to have only made grunting noises spontaneously, though she would repeat phrases parrot-fashion and would also sing parts of songs, which she seems to have remembered quite well. The nurses who live with her now believe that she could say anything at all if only she could be bothered to, but she still never volunteers anything, e.g. if she were seen to be shivering, and were asked what was the matter, she might say "cold". If she wants something she can give the name of the object or she can say a phrase indicating what she wants to do. She knows everybody's name and she even gave the name of an acquaintance of her father's who visited her unannounced, and whom she had not seen for about six years.

Habits. Clean apart from occasional accidents.

Play. As a child she would not play with other children. If left alone with children smaller than herself she might attempt to strangle them (with a scarf on one occasion). She did not concentrate on any activity for more than a few minutes and was very overactive. When she arrived at hospital the nurses thought she was an unhappy child. She was tried at school but would not co-operate and had to be removed as a danger to the other children. Toys she merely smashed or flung from her. No special finger play has been noticed, but she takes a delight in anything involving rhythm, especially singing or dancing. At P.T. she picked up movements as well as any of the "high-grade" girls who are also in her ward. Her movements are quick and neat, and it is this, together with her attractive face and comely appearance which marks her out as quite different from the ordinary defective.

Sleep. As a child she used to "bounce and scream all night" at times, but of recent years she has slept fairly normally apart from an occasional impulsive attack on another patient at bed-time.

General behaviour. She now spends most of her time walking aimlessly round the ward, making unintelligible sounds and avoiding other patients unless the wireless is playing, in which case she will dance and sing with the others. She greets the M.O. with his name and sometimes an inappropriate word. She giggles without cause, cannot be occupied except in simple picking (for a few minutes at a time), occasionally she looks up as though hallucinated. Sometimes she has days when she is impulsive, destructive and dangerous.

There seems no doubt that this patient is undergoing slow but steady deterioration, e.g. when she first came she was tried in the school, though now she is very far below that level.

M.G. Aet 15.

Family history. Father had a "neurasthenic" upset at nineteen, with some mild depression.

Sibs: Patient was the first child. The second is a normal female, described as ofgood intelligence, born in 1939. The youngest child, a boy, was born in 1942. He is described as intelligent but highly strung, and had to go to a convalescent home for six months at age of seven because of a tendency to become "over-excited".

Otherwise nil relevant.

Personal history: Milestones. Parents believe he was late in everything by "a month or two". Walked unaided at twenty-two months and was clean in habits, with occasional lapses at the age of about four years.

Parents say that although they thought he was backward, they did not really think he was abnormal until the age of three years, when the habit began of rocking himself to sleep at night, banging the back of his head against the side of the cot. He also used to wake up trembling and perhaps screaming during the night. On these occasions he was very difficult to pacify. When crossed, he had the habit of going quite rigid and screaming for long periods. As time went on he became less and less interested in playing with other children and at age eight he is noted as being much happier away from others. He became more frequently spiteful towards his sister. He rarely spoke at that time, but he was said occasionally to use complete rational sentences. At age nine he was noted as spiteful, destructive and prone to injure himself by striking his face against the ground or wall. There is no history of anything resembling convulsions or petit mal attacks at any time.

Illnesses. He was in hospital for circumcision for a few days at age five years. This constituted his longest separation from mother apart from the births of the two siblings. His only illnesses prior to admission were a tendency to vomit after meals in infancy and measles and chickenpox, neither of which he had severely. In 1948 he suffered from non-specific orchitis on the left side.

Present state. Physical—he is healthy and well grown but suffers from a severe scrotal type of hypospadias. (His mother was inclined to believe that this was at any rate partly responsible for his failure to achieve sphincter control.) Both testicles are in the scrotum. The right appears normal, the left is smaller and is probably atrophied.

Mental. His face wears an intelligent expression though at times he appears to be abstracted and to "look through" people who are talking to him. At first he gives the impression that he is merely a shy and reserved boy, but on longer observation it appears that he is occupied in phantasy. He frowns and laughs for no evident reason, often when quite alone. He looks up into the distance or at the ceiling as though hallucinated. He does not reply to questions, merely standing gazing, but he will occasionally make a quite unexpected remark, e.g. when given a silver pencil to draw with, he examines it and "caresses" it for a minute or two before beginning to draw; then when the physician is turned away he will mutter "These pencils unscrew, you know". Sometimes he makes more complicated observations than this, but they seem to be isolated fragments of a train of thought the rest of which is not spoken. Sometimes, on the other hand, he makes remarks which are purely repetitive and inappropriate, e.g. "Whisky, dear?" The one stimulus which is almost certain to draw a response from him is the telephone, which always excites him—his nickname is "Ting-a-ling". He shows no response to music. He is full of mannerisms of various sorts. Some of them appear to be obsessive rituals like getting the tables in a straight line or carefully arranging the cutlery on the table. Some of them are less complete, and he does a most peculiar bending-cum-hopping movement whose completion may, after a succession of such movements be prevented by his beginning a new series of related or totally different movements. The more "childish" mannerisms of rocking appear infrequently now, usually in bed at night. A further peculiarity is the "blocking" of movements. When asked to tell another boy to come to the doctor, he gets half-way to him, but can go no further. Asked to shake hands, his right hand is moved quickly at first but then slows down and fails to reach the doctor's, eventually being withdrawn. Towards the other children and staff he is quite indifferent. They can push him, take away anything he happens to have in his hand, or displace him from his favourite position by the fire, but he takes no notice and even perseveres in his previous activity as far as he is allowed, maintaining the same facial expression—usually a wistful, pensive one and not remotely resembling the familiar dull aspect of the so-called subcultural defective. His demeanour tends to be slightly effeminate, but there is no story of sexual play of any type with the other boys. He has not been observed to masturbate. When first admitted, aet 8, he was very destructive and frequently impulsively violent. He was always wet or dirty (he had deteriorated in this respect since the age of four or five). Since admission he has become quite reliable in his toilet habits and is rarely spiteful.

D.R. Aet 19.

Family history. Negative except that a step-sister and an aunt committed suicide. She has eleven normal sibs and step-sibs.

Mother's pregnancy and labour normal.

Personal history. Normal infancy. Chickenpox and measles the only illnesses, but she lost the tip of her finger "in the mangle" aet 2½.

All milestones passed early; only in speech was she behind the other children. She did not begin to speak until about three. Placid, but a good mixer and seemed to enjoy playing with the others.

From the age of about four years she appeared to be less and less inclined to exert herself. She attended school but was a "drifter", seeming to take no interest in the lessons, and making no progress. She did not seem to mind when withdrawn from school and was content to sit about at home. A special teacher was engaged to teach her to read, but she made little progress. She learnt to do simple housework but was slow and dreamy, taking less and less notice of the other children. At the age of sixteen she began to wander away from home and could no longer be trusted to go on simple errands. She began to stay out all night and wandered about until picked up by the police. She showed no emotion on these occasions, admitting without concern that she had sexual intercourse with a man who then left her on the common.

Present state. She continues to be withdrawn and apathetic. She speaks very little but she sits looking at books a great deal. She can read, but letters from home are ignored. She can be occupied in simple routine domestic duties but needs constant supervision and encouragement, otherwise she tends to stand and stare. Her interest can be secured for only a few seconds at a time, but she can do simple calculations while her attention is held. After a few seconds she refuses to make further effort and her replies are mere echoes or "clang" replies. She shows no interest in other patients. She has no friends among the patients. There is, in fact, no essential difference between this girl and the hosts of simple schizophrenics who are to be seen in the mental hospitals except that in her case the psychosis appears to have begun in early childhood.

J.E. Female. Aet 14.

Family history. No history of mental upset or defect. The patient is the eldest of five children, of whom the three youngest are by the mother's second husband.

No abnormality during mother's pregnancy or delivery, nor in early infancy.

Milestones. Did not walk till two, nor was she using sentences until 2½. Other milestones normal.

Mother denies any abnormality in this patient until the age of about nine years, when she was noticed to be increasingly solitary, timid, easily led and absent minded. She became less and less responsive to the teacher's efforts, her attention was absent for most of the time, though sometimes she could make a sensible answer to a question. By the age of 13 she was noted as not associating with other children, behaving peculiarly in school, e.g. flinging herself about and impulsive actions. Finally she was excluded from school because she used to go to sleep and snore. At home she was uncontrollable, took no notice of anyone, kept late hours and walked about the house during the night.

On admission age 14, her mental age was 8 years on the Terman Merrill test. She was unable to concentrate on the tests and would make no mental effort. She was quiet and apathetic, and took no interest at the hospital school. She made no efforts to associate with other patients. Though she was placid she occasionally had attacks of sudden violent causeless rage. She became progressively more withdrawn and apathetic, being content to sit motionless. Her habits deteriorated and it was now noticeable that she looked up from time to time as though hallucinated, and occasionally smiled without apparent cause. She was in fact a typical schizophrenic in whom the disease process had begun earlier than is usual.

E.W. Female. Aet 22.

Family history. Father was drowned (? suicide). Mother had a nervous breakdown.

Personal history. No reliable informant. She was a "poor scholar" but went through an ordinary school, leaving at 15. She had two illegitimate children in the next three years and was diagnosed "defective" when aged 17. She was in several institutions and had many jobs. Her family rejected her. She was finally certified mentally defective as being neglected.

She is a girl of normal appearance and there is a grace of movement about her which is unlike the usual defective. Her manner is simple and her expression puzzled, though there is no trace, in her manner, of the tenseness and anxiety she says she feels.

She is quick to follow the general meaning of the conversation but her replies are not always appropriate and she laughs without cause. She is distractible and cannot concentrate. She is unable to subtract 7 from 100. She can recognize all the common coins but is unable to add a florin to a half crown placed before her. She can, however, give a pretty accurate value for the various articles shown her and can give the cost of articles of apparel, etc. at present prices.

She can read and write and tell the time and she has a fair grasp of everyday general knowledge. Orientation as to place is correct but she is fourteen days out in the date.

She expresses surprise at what she sees here and says she feels everything is strange. Very frequently she asks if things are not peculiar or odd. She says she feels she does not fit in here; she has had this feeling all her life, but it is much stronger of late. Sometimes she feels as though things are not quite real. She takes less interest than formerly in things that go on around her, but she feels tense and anxious all the time, though she has no idea what about. For this reason she is unable to get off to sleep at night, though she tends to feel very tired during the day. On occasion she has thought she has heard people calling her name as she lies in bed at night. This is odd, she says, because she can never see the person who is talking—"there is no-one there". Though she expresses no delusions, she is somewhat suspicious. She says she thinks she is "sick"—not physically, but in her mind, and would like to know what can be done for her.

Her habits are clean, her conduct impulsive and inconsistent. She protests about the injustice of her retention in hospital, but does nothing towards getting discharged. She is content to be occupied in simple routine tasks and shows no initiative. She talks to other patients but has no friends.

SUMMARY

The difficulty of distinguishing between mental defectives and certain types of psychotics is emphasized. Figures are given of the high proportion of psychotics in selected wards of hospitals for the mentally defective.

It is suggested that schizophrenic disorder which begins before the age of 18 can produce a condition of *de facto* mental defect. Further, the hypothesis is advanced that many children diagnosed mentally defective are in reality psychotic, the degree of defect depending on the severity and duration of the psychosis.

The question is considered as to whether the psychosis which causes mental defect in these children is primarily organic or psychogenic in aetiology.

Cases are reported of patients who have been dealt with under the M.D. Acts but who appear to be psychotics in various stages of deterioration.

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MEASURABLE EFFECTS OF GROUP PSYCHOTHERAPY WITH DEFECTIVE DELINQUENTS

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I. The Problem

It is generally accepted that any appreciable lack of intelligence precludes the possibility of successful psychological treatment along verbal lines. It is also widely believed that individuals with a lifelong character disorder, commonly described as "psychopathic", whatever their degree of intelligence, are relatively inaccessible or unresponsive to group or individual psychotherapy. It follows that in individuals where intellectual defect is coupled with psychopathic character, the difficulties of psychotherapy are multiplied. A review of the literature supports this general impression.

Healy and Bronner, as the result of their important work in delinquency, noted a striking relationship between intelligence and the outcome of therapy (11). The treatment failures in young delinquents increased in inverse ratio to the I.Q. level.

10 per cent of treatment failures occurred in the I.Q. range above 110.
23 per cent failures occurred in the I.Q. range 80-89.
66 per cent failures occurred in the I.Q. range 70-79.

They conclude, "counselling or psychotherapy do not seem applicable to mental deficients".

As psychological treatment by these conventional methods has generally failed, the newer methods of group psychotherapy have been tried. Three investigators who separately used discussion methods in groups which included high grade defectives concluded that these methods were ineffectual for them. Wender concluded "experience has shown that group psychotherapy is applicable only to disorders in which intellectual impairment is absent and in which some degree of affect is retained" (22). Cotzin, working with mentally defective problem boys, concluded "Group therapy cannot be on a discussion level" (5). Patterson, working with delinquent adolescent girls, found that the one subject of borderline intelligence included in the group "gained absolutely nothing from the meetings" (17). Patterson pointed out that only those with adequate verbal ability were included in his discussion group, thus emphasizing that the inability to verbalize adequately is a major obstacle to psychotherapy.

Foulkes emphatically states that the ability to express ideas clearly in words is essential for therapeutic success (7). Bromberg also emphasizes the importance of this verbalizing ability (4).

In opposition to this generally accepted view a number of cases have been reported in which psychotherapy with defectives is considered to have been brought to a successful conclusion. Sarason quotes cases of his own and of other investigators (18), for example Hartwell, Chiddester and Menninger to support this contention. However the objective assessment of therapeutic results of this kind is notoriously difficult. Sarason, who worked with groups of average and inferior intelligence levels, concludes: "since the outcome of therapy appeared to be equally successful with the dull group, it would appear that the children of inferior intelligence required no more and in many cases less expenditure of time in treatment than the superior children" (18). Glassman, also working with groups, concluded: "Analysis of the unsuccessful cases in the two groups seemed to negate the possibility that failure in the treatment of the dull normal children is due to lack of intelligence. Instead, the causes of failure among these children were the same factors as handicapped the treatment of the bright children" (9). However, she limited this contention to those with an I.Q. more than 75; when the I.Q. was below 75, low intelligence was related to poor outcome.

It must be concluded then that the weight of opinion, if not of evidence, is on the side contending that any appreciable lack of intelligence precludes the likelihood of therapeutic benefit from discussion methods.

Turning to the other side of the problem—that of psychopathic character traits—a similar weight of opinion is found. Among the many contributors to the supporting literature, Henderson and Gillespie, speaking in general of the majority of cases, state that they "far too often fail to respond to all the attempts which are made to help them" (12). Slavson, dealing in particular with group therapy, states that "experience has indicated that they (psychopaths) are not accessible to this type of treatment" (19). By way of explanation he says "although psychopaths attend groups regularly and seem to get enjoyment—the enjoyment comes from the narcissistic self-indulgent use of the group, usually by provocative acts". It should be remembered that he was referring to activity treatment in groups rather than psychotherapy in groups.

Among some of the other investigators we find less pessimistic opinions. Friedlander points out that most authors are inclined to emphasize the constitutional basis of the psychopathic character, implying that it is unsuitable for a psychotherapeutic approach. But she is inclined to believe "the psychological basis of the disturbance is of much greater importance than has hitherto been acknowledged" (8). However, she emphasizes its severity as a very deep-rooted character disturbance, but claims that "the effect of psychoanalytical treatment shows that the character traits, even if acquired in early life, can be modified". As the result of Glover's thorough work, he concludes that "an average of almost 40 per cent of cases given psychological treatment at the clinic may be expected to become and to remain non-delinquent" (10).

Bromberg also stood out from the ranks of the pessimists, with the statement that "psychopathy may be considered as basically a remediable condition" (4). However he qualified this by pointing out that therapy may be "difficult or even hazardous", and that "spectacular results cannot be expected". In dealing with the difficulties of this type of individual, Bromberg explained that the "psychopath", because of the insecurity he feels toward the therapist as a parental figure, reacts either by impulsively running away from the therapeutic situation or by aggressive behaviour towards it. "In actual practice the psychopath leaves the therapeutic situation abruptly after one or two sessions or becomes unproductive and hostile if he is under compulsion to be treated, as in an institution."

Several prominent writers on the subject—Bromberg (4), Healy and Bronner (11), Abrahamson (1), Lurie *et al.* (13), Bovet (3)—all point out how increased are the obstacles to psychotherapy in individuals in whom intellectual defect is coupled with psychopathic character traits. As an example, Bovet in his recent comprehensive review, under the auspices of the World Health Organization, comes to the conclusion that "If mental deficiency is bound together with a psychopathic constitution, the prognosis is extremely poor."

A general hypothesis which emerges from this review is that individuals with mental defect coupled with psychopathic character traits are not likely to show any improvement in attitude or behaviour under psychotherapy conducted in the form of group discussions. Such an hypothesis seems to be generally accepted, although there is a dearth of objective evidence in support of it. Within the framework of a series of experiments in the rehabilitation of defective delinquents it was possible to devise an experiment which would test such an hypothesis.

II. Experiment

A group of defective delinquent youths were studied during a period of six months, undergoing group psychotherapy and their attitudes and behaviour were measured in comparison with a control group.

(a) *The Subjects*

The study covered a group of seven youths, ranging in age from 16 to 20 years (16, 17, 17, 18, 18, 19, 20), and ranging in I.Q. (Wechsler Verbal Scale, tested just prior to the experiment), from 52 to 77 points (52, 54, 67, 68, 72, 77). They were certified residents of an institution for mental defectives. Five had previously been to residential or approved schools; five had been through the courts for delinquent acts, and two had been sent to the institution on the instigation of the parents as being in need of care and protection. All but one (who had been admitted recently) had failed repeatedly to adapt themselves to occupational work within or associated with the institution. All were considered severe behaviour problems because of the resistance to the institutional discipline. In each case their personal history revealed a tendency to repetitiveness in anti-social acts, a seeming inability to profit from experience, a failure to appreciate moral or social values—traits generally accepted as characteristic of psychopathic character disorder. There was parental lack in four cases. Physically all of them were free from any detectable defects.

(b) *The Design*

In order to make comparisons with a control group of similar individuals, altogether 21 youths were selected (as reported elsewhere, 16), and divided into three equal groups of seven, roughly matched for type of behaviour disorder. One group was left within the institution's usual routine, and was not used in the experiment reported here. The other two were given employment by day in a workshop separated by a single partition, but occupied on the same type of simple manual work, and under one supervisor. Of these groups one was taken as the experimental group for group psychotherapy, the remaining one being considered the control group. The allocation of the three groups to these three different spheres was made at random.

The experimental group and the control group were thus under the same environmental influences for a major proportion of their time. However, they were not domiciled in the same ward, but distributed indiscriminately over several different wards; to this extent their environment was not controlled.

The groups were under observation in three places:

(i) The workshop where time sampling of work output, check lists of behaviour, and general reporting of both were made.

(ii) The wards, where check lists and the general reporting of behaviour were made.

(iii) The room where group discussions of the experimental group alone were carried out. Sound recordings were made of the total discussion and the proceedings were observed through a one-way screen by a psychologist who kept a minute-by-minute count of various aspects of the discussion and behaviour. A full description and discussion of the reliability and validity of these attempts as a relatively objective assessment of procedure and progress is given in another paper (16).

Group discussions were held twice weekly and, allowing for interruptions, totalled 32 sessions over a period of six months. The sessions lasted one hour each. Although no such rule was made by the therapist, the youths were given to understand by the nursing staff that attendance at the discussions was obligatory.

III. THEORETICAL CONSIDERATIONS

(a) *Disadvantages*

Under these circumstances it should be evident that the setting for psychotherapy was most unpromising. Apart from intellectual defect coupled with psychopathic traits, there was a singular lack of prerequisites for successful psychotherapy in general and for group psychotherapy in particular. There was a distinct lack of Slavson's "social hunger" (19), and the good co-operation and adequate intelligence stipulated by East and Hubert (6). On Glover's three considerations (10)—quality of personality, strength of will to recovery and degree of potential rapport with the psychotherapist, the prognosis would be poor in all cases. Not only lacking these prerequisites, this group possessed the disadvantage, pointed out by Bromberg (4) as productive of hostility rather than therapeutic benefit, of being "under compulsion to be treated, as in an institution". Although they accepted with little resistance the obligation to attend, they lacked the important motive—a sense of need or desire for treatment. This lack was expressed during the course of the discussions. The youths made it clear that they appreciated them only as a means of avoiding working in the workshop for the period, and often jokingly suggested prolonging the sessions for that purpose.

(b) *Advantages*

The reasons that a group discussion method rather than individual interviews was chosen were:

(i) From a statistical point of view it had the quantitative advantage of studying several subjects at one time.

(ii) From the point of view of its ultimate practical application: if psychotherapy is going to be found useful in the treatment of institutionalized patients, group methods, with their economy of the therapist's time, deserve to be considered first.

(iii) On theoretical grounds it has been suggested that, in general, the dynamics of the group situation have distinct therapeutic advantages over those of individual therapy for such individuals as those whose disturbance is particularly in their social relationships. Moreno (14) and Slavson (19) strongly maintain this view. More particularly, the more diffuse relationship that develops with the therapist in the group situation may be more useful to the psychopathic character than the more intense relationship that is expected in individual treatment. For the psychopathic character, Aichhorn (2), Friedlander (8) and many others have pointed out the vital importance of developing a strong relationship with the therapist. But Bromberg is one of those who point out the marked inability of the psychopathic character to enter into a close relationship. In the group situation, the members can develop a strong relationship with the therapist but without the intensity on which much individual psychotherapy depends—"the transference forces are diluted". Thus the anxiety arising from the demands of the individual relationship which is likely to provoke the impulsive running away or aggressive behaviour described by Bromberg (4), may be avoided.

In considering the advantages of the group method, it should not be overlooked that it is only one form of therapeutic approach and, as Foulkes emphasizes, it alone may be insufficient to effect anything but a minor improvement in the more serious personality disorders (7). Friedlander seems to discredit the value of therapy which has only a limited objective as she emphasizes how deep-rooted is the disturbance of the psychopathic character. She warns that "unless we are able to rectify the faulty character development all our efforts may remain patchwork" (8). But it should be remembered that a patch may enable a garment to be put into useful if not elegant service, when otherwise it might be useless or embarrassing. Both inside and outside state institutions of various kinds there are a considerable number of adolescents and young adults of both sexes who fall into the category under discussion, whose psychopathic characters could not be comprehensively reformed without an impracticable degree of psychological treatment and yet who, given a certain amount of "patchwork", might change from unproductive and expensive liabilities on society into less disagreeable and slightly productive assets. Such a small degree of therapeutic change at this level might well be much more beneficial to the economy and convenience of society, than a corresponding degree of improvement to individuals who are not as low on the scale of character disturbance as these.

IV. Technique of Group Therapy

A non-directive approach was used, with the therapist assuming a permissive though not a passive attitude. The principles employed were essentially those laid down by Foulkes for analytical groups (7)—(*a*) weaning the group from being led, (*b*) refraining from set topics, programmes, or systematic discussions, (*c*) keeping his own personality in the background.

V. Results and Discussion

A descriptive account of the technique used and the proceedings of the group discussions are given in a separate paper (23). The present paper is concerned with the more objective assessments made—the measured changes in behaviour and attitude that occurred during the experimental period.

For assessing the changes observable during the group sessions themselves, a check-list of eight defined "attitudes" was used as a basis (Table I). In analysing the transcripts of the sound recordings, each recorded comment which expressed one or other of these attitudes was appropriately checked and totalled as a group score.

TABLE I

Check-list of attitudes expressed during group sessions

1. ATTITUDE TO AUTHORITY FIGURES: expressions of approval or disapproval, like or dislike, praise or condemnation towards figures in authority in the present environment.
    - *a.* negative.
    - *b.* positive.
2. ATTITUDE TO NON-SPECIFIC AUTHORITY: expressions as in (1) but towards authority in general or authority figures as a group, excluding specific persons.
    - *a.* negative.
    - *b.* positive.
3. ATTITUDE TO GROUP MEMBERS: expressions as in (1) but towards fellow group members, excluding criticisms which seem to bear little or no resentment.
    - *a.* negative.
    - *b.* positive.
4. APPRECIATION: expressions indicating appreciation of the normal satisfactions of life, either in the members themselves or their identification figures.
5. SADO-MASOCHISTIC: expressions of masochistic, sadistic and other morbid ideas.
6. ASPIRING: expressions entertaining desired prospects of a socially accepted kind.
    - *a.* Feasible: i.e. within their reach or capacity.
    - *b.* Fanciful: i.e. beyond their reach or capacity.
7. SELF-CRITICAL: expressions containing more than the mere acknowledgment of misdemeanours in that they recognize them as morally disagreeable.
8. CRITICAL OF FELLOW-MEMBERS: expressions containing more than mere resentment in that they define or criticize the behaviour or attitude of fellow-members.

On this basis the following measurements of changing attitudes were made:

1. Attitudes to authority figures: The negative, hostile attitudes increased in number progressively through the first three quarters of the six month period, then dropped markedly in the last quarter. This might suggest a progressive release of hostile feelings with a consequent diminution in intensity. The expressions of positive attitude to authority figures rose progressively throughout the period with the greatest increase in the last quarter (Table II). Both of these trends were significant at the 5 per cent. level. They would seem to indicate a definite change in attitude from negative to positive.

TABLE II

Attitudes to Authority Figures

	1st quarter	2nd quarter	3rd quarter	4th quarter
Expressions of negative attitude ..	21	27	54	29
Expressions of positive attitude ..	5	12	16	26

2. Attitudes to non-specific authority: A much less definite change was observable in the negative, hostile attitudes although there was an appreciable drop in the last quarter. This level, however, had been reached in the second quarter. The expressions of positive attitude were relatively insignificant except in the last quarter (Table III). Neither of these trends was statistically significant.

TABLE III

Attitudes to Non-specific Authority

	1st quarter	2nd quarter	3rd quarter	4th quarter
Expressions of negative attitude ..	98	46	76	48
Expressions of positive attitude ..	2	1	1	8

3. Attitudes to group members: The negative, hostile attitudes rose progressively through the first three quarters of the period. There was a slight fall in the last period. The rise was significant at the 1 per cent. level. It might be interpreted as showing a progressive release of hostility. There was an increase in positive attitudes expressed during the last quarter but this was not statistically significant (Table IV).

TABLE IV

Attitudes to Group Members

	1st quarter	2nd quarter	3rd quarter	4th quarter
Expressions of negative attitude ..	16	43	68	60
Expressions of positive attitude ..	8	3	3	16

4. "Appreciation": There was a progressive increase over the four quarters of the period (Table V). This was significant (t 4·093; significant at the ·01 level). This might be judged to indicate a desirable trend.

TABLE V

"*Appreciation*"

1st quarter	2nd quarter	3rd quarter	4th quarter
7	13	21	25

5. Sado-masochism: The expressions of these morbid ideas remained fairly steady throughout the first three quarters but dropped to almost nil in the last quarter (Table VI) This overall decline was significant (t–4·911; significant at the ·001 level).

TABLE VI

Masochistic, Sadistic and Other Morbid Ideas

1st quarter	2nd quarter	3rd quarter	4th quarter
48	43	40	1

6. "Aspiration": There was a progressive increase throughout the four quarters. The subdivision under this heading into feasible and fanciful aspirations, differentiating those which might be within their reach and those which obviously were not, showed that the more realistic aspirations increased markedly in the last quarter (Table VII). The overall increases in both were significant (t–2·049 and 2·643 respectively, significant at the ·05 and ·02 levels).

TABLE VII

"*Aspiration*"

	1st quarter	2nd quarter	3rd quarter	4th quarter
Feasible	8	22	20	50
Fantastic	8	14	24	22

7. Self criticism: Such references were not numerous and although increasing slightly through the first three quarters fell away in the last. The changes were not significant.

8. Criticism of fellow members: There was an irregular increase throughout the four quarters. The overall increase was significant (t 2·095, significant at the ·05 level). Thus some development of the critical faculty, useful in psychotherapy, would seem to have taken place (Table VIII).

TABLE VIII

Critical Attitudes

	1st quarter	2nd quarter	3rd quarter	4th quarter
Self-critical	4	10	11	5
Critical of fellow-members ..	12	7	20	19

Of some therapeutic significance is the fact that a certain amount of dynamic interplay seemed to have taken place in the progressive changes in negative or hostile attitudes of the group as a whole. There is indication that there was a progressive redistribution of these negative attitudes within the three areas observed (authority figures, non-specific authority, and fellow members of the group) as shown in Table IX. During the first twelve sessions, there was a steady and marked decrease in the number of negative attitudes expressed towards non-specific authority. This was balanced by a steady rise in these expressions directed toward fellow members. This might suggest a re-distribution of negative attitudes away from the non-specific and towards specific figures. For the next eight sessions, there was a marked increase in negative attitudes in all three directions. This could be taken to indicate the release of suppressed emotions of resentment and hostility by means of verbal expression—an intermediate and desirable effect of psychotherapy. During the next four weeks a very marked fall occurred in hostility expressed towards non-specific authority and towards authority figures, much more particularly towards the former, while the expressions towards fellow members reached its peak. This could well indicate not only a redistribution which directed resentment and hostility towards definite persons rather than non-specifically, but also brought these feelings much nearer to the individuals concerned, that is, within the group itself—another desirable effect in psychotherapy. In the last eight sessions, while there was a general decrease in these negative feelings, the order of their distribution was reversed from that at the outset. At the end the negative attitudes were focussed mostly within the group whereas at the outset they were diffused almost entirely towards non-specific authority. Moreover, the total amount of resentment expressed towards the group itself had risen fairly steadily to reach an end point far in excess of the starting point. In contrast to this, expressions towards non-specific authority although reaching a high peak just after the mid-point, fell away in the end to a new low point.

TABLE IX

Distribution of Negative Attitudes

	Sessions							
	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32
To non-specific authority ..	56	42	20	26	57	19	30	18
To authority figures	9	12	11	16	54	20	16	13
To group members	5	11	21	22	25	43	29	31

The ultimate test of any therapeutic effect on such individuals is in their general behaviour, in so far as it can be objectively assessed. In this experiment it was useful to have some assessment of the behaviour of these youths in the workshop where they were employed for most of the time. Some aspects of their behaviour, and in particular their diligence, were measured by means of check-lists and compared with similar measurements made on the control group which was working under similar conditions.

Time sampling of diligence indicated a slight improvement in the experimental group and none in the control group. The overall increase was slightly less than 10 per cent and was significant (t–2·704, significant at the ·02 level). A slight decline in the diligence of the control group was not statistically significant.

The check-lists covering some aspects of behaviour at work showed more striking differences between the two groups. The check-list covered the following behaviour:

1. Often idle.
2. Often absent from the shop.
3. Late two or more times during the week.
4. Misbehaving when the supervisor was away.
5. Shoddy, careless work.
6. Sent to the dentention ward for gross indiscipline.

The results shown in Table X indicate a steady and appreciable decline in the unsatisfactory behaviour of the experimental group throughout the four quarters of the period. This contrasts with the control group which, although falling during the second quarter, rose throughout the third and last quarters to a new high point.

TABLE X

Unsatisfactory Workshop Behaviour

	1st quarter	2nd quarter	3rd quarter	4th quarter
Experimental group	48	34	31	15
Control group	39	10	27	44

Analysis of variance, dividing the period into first, middle and last thirds, shows that the change in the experimental group was significant at the ·05 level, while that of the control group was not significant. In comparing the results of the two groups, it should be borne in mind that factors other than the effect of the group therapy—factors such as rivalry resulting from one group alone having been selected for special treatment—may have been operating.

VI. SUMMARY AND CONCLUSIONS

1. A group of seven institutionalized high grade defective youths with psychopathic character traits were treated experimentally over a six-months period with a view to assessing the therapeutic value of group discussion methods.

2. Measurements were made of the changing attitudes of the group by analysing the sound recordings on the basis of a check-list of defined attitudes. Statistically significant changes in several attitudes were recorded and considered to be of therapeutic import.

3. The occupational adaptation of this group was measured by time sampling and check-lists against a corresponding control group set up in an experimental workshop. The experimental group showed a marked improvement in workshop behaviour and a slight trend toward improved diligence.

No conclusive evaluation of therapeutic effect should be made until such individuals have been followed up for some years. But at this stage the results of the experiment provide strong evidence to disprove the hypothesis that individuals with mental defect coupled with psychopathic traits will show no improvement in attitude or behaviour under group therapy.

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GROUP THERAPY IN H.M. PRISON, WORMWOOD SCRUBS— THE APPLICATION OF ANALYTICAL PSYCHOLOGY*

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GROUP therapy is one of the more recent advances in psychiatry and is a logical development which fits in well with the spirit of our time. The modern trend in psychiatry is to see the patient not only as an individual but also against his social background. This paper is a factual account of group therapy as carried out in Wormwood Scrubs Prison. The pioneer work was done by Mackwood (1949) and described by him. We should like to acknowledge our indebtedness to him.

SELECTION OF PATIENTS

From the individual interviews with many prisoners in the course of his duties, as well as special interviews requested by prisoners, the Prison Medical Officer selects patients in need of and likely to benefit by psychotherapy and refers them to one of the Visiting Psychiatrists who undertake the treatment, which may take the form of psychotherapy in any of its forms, or physical treatment, or a combination of the two. The ideal patient for treatment is an offender—not a hardened recidivist—of good intelligence who is anxious to be relieved of the anxiety and tension associated with his psychological deviations and who is prepared to co-operate fully in treatment. He should be ready to undertake a thorough revision of his own way of living rather than go on purchasing short-term relief of tension at the cost of increasing maladjustment. Some psychopaths are particularly suitable candidates for community therapy of the type we use here. The limitations of individual psychotherapy and ordinary group therapy in relation to this exasperating section of the population is well known. It is too soon as yet to state exactly how far the treatment described here is successful with homosexuals, but we have reason to believe, that at any rate there is a considerable improvement in their adjustment to society following a period in the group, and a number appear to have given up homosexual practices after their treatment.

After some initial psychological investigation the therapist, in consultation with the Principal Medical Officer, selects certain patients for group therapy.

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The implications of this treatment are explained to the patient, and it is impressed upon him that anything said by a doctor or member of the group is "off the record" and under no circumstances should be repeated outside the group. This selection of patients needs careful consideration, as the composition of the group is very important. One considers whether the patient is likely to benefit from group therapy and if he is likely to contribute anything constructive to the group. Each individual is valued for his contribution. One aims at a blending of different personalities, a balance of personality types whilst avoiding too many of one particular type. With an undue proportion of well-educated members there is the risk of intellectual insight without emotional participation. One of the most useful group members at a time when the group was overloaded with slick verbalizers, full of text-book psychology, was an admirably naïve simpleton of barrow-boy mentality. Once he had plucked up enough courage to admit that he couldn't understand half of what the self-styled intelligentsia said, and challenged them to put it into plain English, he kept their feet much nearer the ground than they would otherwise have been.

The ages of members of the group are from about 17-30 years. In the selection of adolescent group members one keeps in mind the risk that they may become too dependent on the group. We have found it helpful to include a small nucleus of mature men in the group as they appear to exercise a stabilizing influence over the younger members. At the same time it would be undesirable if any of these mature members attained too much dominance in the group discussions. We have not noticed any tendency for leaders to be thrown up by the group.

Organization

Group patients are located in the Hospital in the New Ward of ten beds which is exclusively for their use. They work together in the book-binding shop in charge of a specially selected officer with a knowledge of occupational therapy. Their leisure time in the evenings is fully occupied with lectures, study, play-reading, water-colour painting, indoor games and the organization of educational classes among themselves in subjects such as English spelling, etc. by pooling their own resources. They keep a daily record of discussions and group activities in the form of a diary, and in this way the therapists are aware to some extent of what happens in the group between their visits. The patients are together for twenty-four of the twenty-four hours so that there is no escape from the continual impact of one personality on another or from the stresses and tensions set up thereby. We attach great importance to this continual close contact of the patients, which might be compared somewhat fancifully to the alchemist's crucible in which various ingredients were placed and the whole sealed up to prevent any escape of the products of combustion.

A few patients find the first weeks in the group a difficult time and may ask to leave. If they insist they are allowed to do so, but no patient is removed by the therapists except for purely medical reasons; to do so would probably create a sense of insecurity in the others and give them the impression that it would be unwise to express aggression or criticism. The group has rarely asked to have a member removed; it is the task of the group to deal with the tensions arising within it and if an individual member is difficult this is regarded by the group as a challenge.

Discipline

One naturally associates prisons with discipline. In the New Ward there is a minimum of disciplinary supervision and no prison officers are in the New Ward by day or night. The officer in the book-binding shop during labour hours is an instructor rather than an officer. The responsibility for maintaining discipline and keeping the Ward clean, etc. rests with the group as a whole. The morale and traditions of good discipline which have been built up in the group over the years are probably the most potent factors in maintaining the high standard of discipline which prevails. Confirmation of this high standard is provided by the spontaneous comments of the prison hospital staff to the effect that discipline in the New Ward compares very favourably with that of other wards in the hospital. All this is remarkable when one considers that the group patients have various types of personalities, backgrounds, cultural attainments and criminal records, and a few of them could have been described formerly as badly behaved prisoners. As must be expected, the group morale varies slightly in quality from time to time but on the whole remains high.

GROUP PROCEDURE

It is notoriously difficult to describe any psychotherapeutic procedure briefly and accurately, and all too easy to get ensnared in linguistic and other undergrowth when describing the theoretical concepts which the therapist uses. More important, perhaps, is the way in which this type of work is affected by the conditions of prison life and the ways in which it must differ from similar work elsewhere.

The group is a "closed" one to the extent that members are together all the time, and an "open" one to the extent that as members leave the group others take their place. Group meetings with the psychotherapist are held at least three times a week and a number of other patients receiving psychotherapy are permitted to attend. The meetings are very informal: the members sit on chairs around a large table, they may smoke and they use each other's Christian names but refer to the medical officers present as "Doctor". The medical officers refer to them by their surnames. A very friendly atmosphere prevails but of course tensions sometimes arise.

At a recent meeting the question being discussed was, "What should be the minimum percentage of success to justify the continuance of psychotherapy in prisons?" Member "A" said he thought three of the present members would be failures no matter what we did for them. Member "B" invited him to name the three, which "A" did without hesitation and gave his reasons for thinking they would be failures. The three members mentioned spoke and disagreed with "A's" prognosis. All members are expected to take an interest in the difficulties of individual members, so the group went on to a discussion of the three patients mentioned and of "A" himself, who maintained that he felt he had greatly improved since his admission to the group and that if this improvement continued *he* would not be one of the failures. "A" is an obsessional neurotic and he reminded the group that a few months ago he "had" to touch certain objects and that failure to do so would leave him in fear of impending disaster; that each time he tied his shoelaces he had to pick up the ends of the laces, one in each hand, and lay them down again three times before he could tie his shoes, and that it would distress him so much to omit to do so that he would sooner be compelled to remove his shoes and begin all over again. He also reminded them that the ritual he had to go through, beginning with taking off and putting on his shirt three times before getting into bed, took several minutes, and that he now got into bed in the ordinary way—as they could see for themselves.

The meetings last from one to three hours and vary in type from a purely discussional group to a didactic group in which the psychotherapist discourses on some relevant problem. As a rule the discussion is along the lines of an analytical group in which inter-personal relationships are clarified or motivations considered. Experience has shown that it is necessary to have group meetings at regular short intervals, as the morale of new members is obviously affected by a lapse of time between meetings and it has been found that sessions of individual therapy do not compensate for this.

THE PRISONER PATIENT

These patients have already cleared one hurdle, or have been pushed over it. Their "offence", "deviant behaviour" or "guilty secret" is a matter of common knowledge. This much of the truth can no longer be evaded or concealed, and its consequences provide, at the least, a strong motive to avoid further unpleasantness of the same sort. Since these prisoners stand to gain nothing from the treatment but treatment itself, with no special privileges, there is little opportunity to turn their illness to advantage and so prolong it.

THE PRISON BACKGROUND

The cenobitic life with its restrictions of activities and lack of outside contacts results in an intense concentration of interest. It is possible to focus this on the patients' most pressing problems in a way that can seldom, if ever, be achieved with patients who are at liberty (whether in hospital or out of it). Matters then tend to develop with the speed and profusion of plants in a hothouse. Much may be achieved in a short time—and much may go wrong. Both processes are more easily reversible than is the case elsewhere.

The prison régime is the environment in which the prisoner currently finds himself. He does not, of course, like it, and is apt to regard it as an obstacle to his recovery. If he has read much of the professional literature (and many have) he will find it easy to quote eminent authorities to support this view. It is our contention that the prison régime provides unique opportunities for therapist and patient, and that it is more to the point to explore these first than to dwell on such disadvantages as prison life may hold. The group do well, as a group and individually, when they remember that the Prison Staff's approval cannot be commanded or had for the asking, but must be earned and maintained. How this should best be done without toadying, or aspiring to pious resolutions above their power to maintain, is a problem that provides a daily exercise in understanding themselves and others. For the therapists, the Prison Staff are invaluable as candid critics who see what goes on when the therapists are not there, and can see it against the background of normal prison life. We have found their help invaluable, and we are most grateful for it.

ROLE OF PSYCHOTHERAPIST

The role of the psychotherapist presiding over a group meeting is a unique one requiring knowledge of a specialized technique. Rather than lead he usually allows the group to develop the discussion. His main function is to interpret what is happening within the group. He observes unconscious motives in action in the way individual members feel towards each other and towards him. He takes note of the extent to which individual members are acquiring a better insight into their difficulties and is therefore better able to decide which patients require more individual psychotherapy. It is generally accepted that the need for individual psychotherapy declines with the progressive assimilation of a patient into a group. Merry (1953) in discussing the relative values of individual and group therapy on the same patient, points out that "the type of doctor-patient relationship created at individual interview played an important part in the degree of participation of that patient in the various group therapies practised in the Industrial Neurosis Unit (Belmont Hospital). A good doctor-patient relationship was most useful in helping the patient to derive maximum benefit from the group situations". Baker (1952) describes the patients under treatment at Belmont Hospital as follows: "Most of the patients would be classified as having psychopathic personalities or severe character disorders and come from the so-called 'psychopathic tenth' of the population. About 20 per cent. have a criminal record and there are a large number who have always shown a precarious social adjustment". In some ways this description would fit our prisoner patient and hence it is not surprising that our group therapy techniques are very similar to those used by Maxwell Jones and his co-workers at Belmont, although there is considerable difference in *Weltanschauung* owing to the predominantly Jungian orientation of the psychiatric staff here. There is no accepted uniformity in the classification of the various forms of group therapy; the forms are developed along individual lines to meet specific needs.

ROLE OF PSYCHIATRIC SOCIAL WORKER

This may be conveyed by the following note compiled by the members of the present group in answer to a question put to them as to what her role is. "Attached to the group is the Psychiatric Social Worker, who is a most valuable asset. Her presence at every group meeting enables all members to realize her understanding of subjects, however delicate, that the group may wish to discuss. This helps even the most self-conscious members to have the utmost confidence in her and they are thus able to discuss with her privately even the most personal subjects. Every opportunity is given for members to interview her weekly. She forms an important link between patients and their families, and through her efforts many family relationships are greatly improved. To many of the group she represents a mother figure. It is the unanimous opinion of the group that no more sincere or understanding person could have been selected for this arduous task than Miss Daisy Woods." We would confirm this view.

PSYCHOLOGICAL ORIENTATION

We do not yet fully understand what the therapeutic processes are in the group—the intra-group and inter-personal dynamics—that produce the improvements observed in the various types of patients. This is not surprising, as the whole question of therapeutic dynamics in psychiatry is much in dispute. For example, the Jungian concept of transference, postulated in Jung's *Practice of Psychotherapy* (1954) as being largely based on unconscious processes derived from the conjunction of the respective unconscious of patient and analyst, thus creating a process by which neither is unchanged and in which both participate. This is at once infinitely more subtle and more in line with the classical view of psychic processes than with the more easily comprehended transference of the Freudian school.

This paper is intended to indicate how much can be done within the prison framework. We would mention two techniques we find very useful, namely, psycho-drama—dramatized episodes of the patient's past life—and abstract painting. The patient prepares his own psycho-drama, helped by fellow-patients if he wishes, but the staff do not help or take any part in the drama, as is done in some outside hospitals. There are no auxiliary-egos such as are used by Moreno (1946). Each drama is followed by a general discussion in which the psychotherapist, prison medical officers, the psychiatric social worker and individual members of the group take part, and finally the psychotherapist sums up what has been said. There is no doubt that the preparation and acting of a drama affords the individual patients an opportunity for a great deal of emotional abreaction and that they gain a more sympathetic understanding from their fellow-patients. Moreover, they find that their weaknesses are accepted by the group, and thus lose their sense of isolation. The patients are encouraged to do abstract paintings and the therapist helps the patient to interpret them. The patients also participate in the interpretation of the paintings and dreams of the other patients. This aids the promotion of group feeling and cohesion and of psychological awareness in the group.

The aim of group therapy in prison is to help each prisoner patient to develop a sense of belonging to a community, and to get to know himself as he really is. When a prisoner is confined to a prison or institution where there is a fixed daily routine, where almost everything is arranged for him and where he is not required to take much responsibility, he tends to become dependent on others unless he is stimulated to avoid doing so. One of us (J.J.L.), in an earlier experience with long-term convicts at Dartmoor Prison, often saw this acquired dependency on others. Men were discharged after long terms in prison, full of good resolutions, but were soon reconvicted and returned. Regarding the prisoners' prospects for the future, the very experienced Governor of Dartmoor at that time frequently wrote in the prisoner's record before discharge, "He is a good prisoner—he will return". By "good" he meant a well behaved man in prison. Part of the explanation of why they returned may well be that they lacked a sense of belonging to a community other than the prison community, and that after release from prison the only group in which they felt at home consisted of ex-prisoners. It could be argued that group therapy might encourage a patient to develop a dependence on the group. This danger is recognized and every effort is made to encourage each member of the group to develop a sense of individual personal responsibility rather than merely to conform to prison discipline. He is frequently reminded that in addition to making a contribution to his own recovery he can, by participating in all group activities, help his fellow-patients to improve. Self-discipline is thus regarded as very important.

External Communications

Group therapy in prison was not started with a view to making psychotherapy available to a larger number of prisoner patients, though it has in fact achieved this end to a certain extent and further development along these lines is possible; it seemed to follow as a natural development of the treatment being given. The group is designed to resemble as far as possible a section of the community outside prison and no artificiality, such as the total absence of authoritarianism, is encouraged. In this connection it is not considered natural to try to foster a group which has no authoritarian figures and relies entirely on internal discipline, as this finds no counterpart in our present social structure where authoritarian figures such as employers, Service and Police Officers, etc. play a large part. From this point of view the relationship between the prison officers and the prisoner patients is considered of great importance as a means of rectifying inadequate relationships to parental figures. Every prison official in daily contact with the prisoner patients should have something to contribute to the treatment.

It may well be that the results of treatment in a special institution will be superior to those obtained in an ordinary prison. Nevertheless, we are satisfied that much can be achieved in the present set-up, though we feel the lack of feminine contribution in the therapeutic setting, as the absence of an appropriate valuation and understanding of this side of life plays a very large part in the formation of neurotic and delinquent behaviour patterns amongst the present group.

The Application of Jungian Methods

The principles underlying our methods are as follows. Firstly, this group therapy is probably unique in so far as it is an attempt to apply modern methods of analytical psychology to group treatment. Our chief aim is to effect in each case a better relationship with the unconscious. The Jungian point of view has this great advantage that it pays more attention to collective adaptation than the more purely personal outlook of the other analytical schools. The usual methods by which the influence and activity of the unconscious can be experienced is through dream analysis, transference interpretation and by analysis of spontaneous creations such as abstract paintings—for which our patients have coined the hideous neologism "psycho-paintings". We tend to use the last two methods most and deal with the material either causal-reductively or else synthetic-prospectively. Delinquent and neurotic symptoms are an expression of an unsuccessful attempt at a new synthesis of life. They are valuable seeds which have failed to come to fruition owing to adverse conditions either internal or external.

To get a patient to see the positive values in his apparently useless condition of neurosis is one of the important tasks of psychotherapy. The substitution of an inner everyday heroism for the glittering pseudo-heroism of the delinquent is an even harder task. We try, through analysis, to reveal to each member of the group the essential tasks which his inner personality requires of him and which, if neglected, will lead to further trouble, His future career will then depend largely upon the moral courage he possesses in facing these tasks. If this is lacking the treatment will inevitably fail, as insight alone is never enough. It may be said that most of our patients are not lacking in moral courage. Possibly the most common psychological problem encountered is the relationship to the anima. We find that our patients are only too willing to accept a reductive explanation of their difficulties if this is done in a superficial way. They then tend to disown all personal responsibility and to blame their delinquency on their early environment in a way which opponents of psychotherapy in prisons have rightly criticized. We combat this by insisting on the terribly strict discipline in which each must be held responsible for his fate and ask himself the question, "What sort of fellow must I be that such awful things have been done to me and that my parents brought me up like that?" The indifference of the collective to personal needs is also emphasized and patients are constantly reminded that any clash with society will inevitably bring retribution in one form or another, apart from the obvious legal consequences.

We also repeatedly emphasize that crime is not caused by neurosis and that although neurosis—like poverty and many other factors—may incline certain individuals towards a criminal career it need not lead to such a failure of adaptation. Crime itself we regard as a collective phenomenon in which certain individuals, for many reasons, may become involved. We regard it as one aspect of the shadow of all that is considered most laudable in our mores. We believe that the development of personal responsibility is likely to prevent our patients being caught up in this form of living. Always we seek to determine what is hindering the individual psychic growth of our patients and we try to encourage the development of the seeds of their real selves which lie dormant within them.

It is of course impossible to convey in a few words the whole theoretical background of our practice, and those interested in these problems are referred to the extensive literature of modern analytical practice. We do not exclude from the group any authorized visitor who may help in the cultural activities, and these persons include workers in the religious and social fields as well as artists and instructors of various kinds. We try to include the group members in all our research work and lay many of the problems of crime and neurosis in front of them for their consideration and suggestions. We find that they take a very real and enthusiastic interest in their problems and we consider that this identification on the part of the criminals with people interested in solving these problems is of unique value, and that the gain is not one-sided. By now the group has well-established traditions and the communications, both internal and external, are very good. At all times the members take a lively interest in the progress of their fellows and realize that they must play a big part in helping their neighbour to overcome his difficulties. The degree of tolerance and understanding shown by some of the men is often quite amazing, as is their degree of psychological sophistication. It is important to emphasize that the cultural pattern of the group is a living thing and what is said today may well be obsolete in six months' time as new ideas are continually emerging from the group.

Difficulty of Follow-up

We have reason to believe that good results are obtained but as yet we cannot quote any figures. A psychiatric follow-up, especially in the form of a questionnaire sent by post to our ex-patients who are scattered all over England, would present difficulties not met with in other types of clinical survey. Besides, many ex-prisoners wish to forget that they were once in prison. To anyone cognizant of the difficulties of assessing the results of any form of psychiatric treatment this defect in our scheme hardly needs an apology.

Summary

The practice of group therapy in H.M. Prison, Wormwood Scrubs, is described and the psychological orientation of the therapists is shown in connection with the theoretical principles involved.

An attempt has been made to show how importance is attached to both the needs of the individual and those of Society. This is reflected in an equal emphasis on extraverted and introverted activities.

Acknowledgments

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INVESTIGATION OF GERSTMANN'S SYNDROME INDUCED BY HYPNOTIC SUGGESTION

By

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CERTAIN specific disabilities following lesions of the dominant hemisphere particularly those involving the parietal region, have been recognized for many years. The syndrome of dyscalculia, dysgraphia, right-left disorientation and finger agnosia is usually known as Gerstmann's syndrome, following that author's descriptions in 1924 and 1940. It has been suggested that of these four main components of the syndrome, finger agnosia might be the fundamental disturbance, bringing the others in its train. Thus, as a result of the postulated importance of the digits for numeration, acalculia would naturally follow. Dysgraphia would result from the loss of the "schema" for the fingers—a part of the body-image—and right-left disorientation might be a consequence of the same body-image disturbance—a "hand" agnosia.

Teitelbaum (1941) demonstrated that visuo-spatial disorders and disturbances of the "body-schema" remarkably similar to those encountered in organic cases could be induced by hypnotic suggestion. In four patients, all admitted to hospital suffering from hysterical amnesia, he produced such disturbances as spatial disorientation, inability to name objects and colours, inability to calculate, and functional anaesthesias by giving post-hypnotic suggestions that they would "forget everything about their bodies" when they awakened. It was thought that this method might be used to investigate the interrelationships of the various elements of Gerstmann's syndrome and the present paper presents the results of such an attempt.

METHOD

In the hypnotic state the subject was given the suggestion that after awakening, and on receipt of a certain signal, one of the symptoms of Gerstmann's syndrome would appear. On separate occasions each of the four main symptoms—dyscalculia, dysgraphia, right-left disorientation and finger agnosia—was suggested by itself and the presence or absence of the other three and of any other disturbances of higher cortical function was tested for. The symptoms were suggested to the subject in non-technical descriptive terms, such as "when you wake up you will find that you cannot tell right from left", or, ". . . that you cannot remember the names of your fingers or tell one from another", or, ". . . that you will find you cannot write", or ". . . cannot do mental arithmetic".

The post-hypnotic suggestion was set to take effect on a given signal—rapping on the examiner's desk—and to be cancelled on a second signal. Apart from being told in general terms that there might be some temporary after-effects of the hypnotic state, the subject was given no indication before hypnosis was induced that any particular symptoms might appear. In addition to testing during the period of operation of the post-hypnotic suggestion, the integrity of the functions under examination was demonstrated each time after the suggestion had been cancelled. On one or two occasions when the subject was annoyed with herself or upset at not being able to do the tests, she was hypnotized again and amnesia induced for the whole episode.

(The possibility of inducing post-hypnotically a state very similar to Gerstmann's syndrome by suggesting all four features at the same time had previously been demonstrated in another subject.)

Results

The subject of the tests was Mrs. P., aged 21 years, who had originally been successfully treated by hypnosis for hysterical symptoms—tremors, giddiness, aphonia and insomnia. These symptoms were rapidly removed, whereupon with her permission the tests described below were undertaken. Before her original treatment and again before the tests were started, she showed no abnormalities on physical examination and, in particular, there were no signs of any of the elements of Gerstmann's syndrome.

The following tests were carried out:

1. *Right-left disorientation* was suggested. When asked to hold up her right hand, the subject stared stupidly at her hands, then raised the left. She was unable to decide which of the examiner's hands was the right. She could not turn correctly to right or left on command.

   No other associated disturbances were present.

   This symptom was successfully induced on two other occasions with similar results.
2. *Inability to calculate* was suggested. Although the suggestion was limited to mental arithmetic, simple sums on paper also produced Ganser-like answers, e.g. $2+2=5$.

   No other associated disturbances of function appeared.

   This symptom was produced on three other occasions with similar results.
3. *Dysgraphia* was suggested. The subject looked doubtfully at the pencil, picked it up and held it correctly, then put it down saying that somehow she "could not write just now".

   No associated disturbances of function were observed.

   This symptom was repeated on two occasions, on one of which she was able to write her name but nothing else, and on the other she made no attempt to pick up the pencil.
4. *Finger agnosia* was suggested.
   - (*a*) On testing, the subject could not name or indicate her own fingers, those of the examiner or those on a drawing of a hand. There was right-left disorientation for her hands, eyes and ears, but not for her legs or parts of another person. She could not do simple mental arithmetic. She could not write. There were no disturbances of speech nor visual agnosia.

     This suggestion was given on two other occasions with the following results:
   - (*b*) Finger agnosia for self and examiner but some success with diagram of hand. This time right-left disorientation included herself and the examiner. Dyscalculia as before. She could write her name but nothing else.

(*c*) This time complete agnosia for the fingers was present and also included the wrists and elbows, which she could not name, although she named the shoulders correctly. Right-left disorientation, dyscalculia and dysgraphia were present as in Test 4(*a*).

During each of the above tests, the speech functions, visual gnosis and visuo-spatial ability (constructional tests) were also examined, together with power and sensation in the upper limbs, and no abnormality was detected on any occasion.

Discussion

The results of the tests described above suggest that of the four main constituents of Gerstmann's syndrome—dyscalculia, dysgraphia, right-left disorientation and finger agnosia—the last-named appeared in the subject tested to be somewhat more fundamental than the others, inasmuch as its induction by hypnotic suggestion brought some or all of the others in its train, whilst induction of the other symptoms usually resulted in their appearing in isolation.

The universal validity of such results in other patients is very doubtful, and indeed Teitelbaum's four experimental cases showed differing degrees of irradiation of disturbance from the defect which was actually suggested. For instance, Teitelbaum directly and successfully suggested finger agnosia in his cases 3 and 4, and no associated defects became apparent at all, while the same suggestion in his case 2 produced not only finger agnosia but also agnosia for ear, eyebrow, elbow and most of the body (cf. Test 4(*c*) above), together with inability to name colours or to read what she had written, and some disturbances of speech and calculation. This variability in the closeness of the bonds between the various functions involved may well be a result of the particular association patterns formed by learning and conditioning during early development. In this way damage in the adult to the particular parts of the brain which we know to be important for the integrity of that form of self-awareness constituting the body-image, may produce various associated disturbances, or even none at all. The whole question of localization of higher cortical functions is fraught with difficulty, much of which is semantic in origin as a consequence of the injudicious mixing of psychological and anatomico-physiological terms. While it is known that psychological disturbances can be observed in the presence of organic lesions, this does not necessarily indicate that the functions so disturbed are normally an intrinsic product of that part of the cortex which is subsequently found to be damaged—a point which Hughlings Jackson continually stressed. A case in point is the investigation and description of the symptomatology of organic lesions of the parietal lobes which is now tending to invade the realm of psychology. Although the disturbances induced in the tests above bear a close resemblance to those of Gerstmann's syndrome as seen in organic brain lesions, it is not suggested that they arise at the same cortical level (in the Jacksonian sense) nor that the psychological mechanism is disrupted by the same means in both the organic and post-hypnotic cases. However, these results do counsel caution in assuming that all the four main functions which are disturbed in Gerstmann's syndrome are "localized" in the same part of the cortex, even in the organic cases. The information which subserves the "body-schema" derives from visual, kinaesthetic, tactile, palpatory, vestibular and coenaesthetic sources, and with the known anatomical arrangement of pathways there is likely to be a "node", where much of the information from these various sources is brought close together, in the junctional area of the parietal, temporal and occipital lobes. The integrity of this area will obviously be of supreme importance for the preservation of the "body-schema", and we know that damage to this area disturbs the body-image in different ways according to which hemisphere receives the damage. When this site on the major hemisphere is damaged, finger agnosia is liable to appear, but whether disturbances of writing, calculation and right-left orientation will also arise may well depend more on the individual's particular association patterns than on the site of the lesion. Indeed the existence of an intact body-image, which presupposes integrity of the anatomical pathways carrying the requisite information, may well be fundamental for the normal carrying out of many psychological processes (Schilder, 1935), including sensation, perception and gnosis generally.

Conclusions

It is not claimed that any valid conclusions can be drawn from this investigation of a single neurotic patient and it may indeed be doubted whether anything conclusive can be expected from investigating higher cortical functions with a technique such as hypnosis, the exact mechanism of which is still obscure. Nevertheless, the results suggest that at least in the subject tested, finger agnosia appears to play a more basic role in the hypnotically induced Gerstmann's syndrome than do the other elements thereof.

This agrees with a hypothesis reached previously on purely theoretical grounds that disturbances in part or in whole of the "body-schema" may vitiate a wide range of psychological functions. It is suggested that hypnosis may be used as a means of revealing functional interdependence between various higher cortical functions and that it might be fruitful to pursue such investigations in a larger number of subjects, preferably healthy volunteers.

Summary

An investigation is described into the interdependence of the various elements of Gerstmann's syndrome—finger-agnosia, dyscalculia, dysgraphia and right-left disorientation—by means of post-hypnotic suggestion. The results in one case are described and suggest that, in this subject, finger agnosia, a partial disturbance of the body-image, may be the fundamental symptom in the syndrome. Further use of hypnotic suggestion in the investigation of the higher cortical functions in a wider series of cases is urged.

Acknowledgments

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HYPNOGRAPHY—A TECHNIQUE IN HYPNOANALYSIS

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Hypnoanalysis is becoming more and more a recognized psychotherapeutic procedure. It is an analytical type of therapy which utilizes the hypnotic state to reduce the great time and cost of formal psychoanalysis. As with any new form of treatment, there is great variation in the techniques used by different authors (1, 2, 3, 4, 5, 6, 7). This variation ranges from such extremes as attempts to imitate formal psychoanalysis with a hypnotized patient, to mere question and answer interviews interspersed with hypnotic suggestion.

Hypnography is a technique in hypnoanalysis in which the hypnotized patient projects psychic material graphically, and then while still under hypnosis, gives associations to the projected material.

Induction of Hypnosis

A detailed description of the technique used for the induction of hypnosis will not be attempted. The patient's suggestibility is estimated, and the choice of technique is decided by the patient's ability to relax while the tendon reflexes are being elicited during the physical examination (8). In general, those who relax easily are hypnotized by suggestions of relaxation; those who become tense, by arm levitation, and those who show evidence of negativism, by the induction of repetitive movements. Whichever method is used, the patient's defences are noted, and as far as possible incorporated into the suggestions (9). The only post-hypnotic suggestions given are for deeper hypnosis in the next session.

Before hypnotic painting can be induced, a certain critical depth of hypnosis must be attained. If this depth is not reached, the patient will wake up when it is suggested that he will paint. There is no single test which accurately measures the depth of hypnosis in all patients, but the induction of repetitive movement of the arm with the patient's eyes open, and the maintenance of the repetitive movement in spite of strong challenges to stop it, is a very useful criterion of a suitable depth of hypnosis for proceeding to hypnography. This is usually attained by the third session.

Early Experiments

Various media of graphic expression have been tested. The first experiments were done with the patient using an ordinary lead pencil. It was found that patients were inclined to hold the pencil so loosely that often only a very indefinite outline resulted. It was the same with a heavy black crayon. Experiments in the use of coloured crayons and coloured paints were not very successful. There was always the tendency to continue painting in the one colour, so that it was necessary to give practically continuous suggestions reminding the patient that he could use other colours. The conclusion was reached that, in general, patients do not handle colour well while under hypnosis, and that any therapeutic advantages were over-shadowed by the technical difficulties in getting the hypnotized patient to use colour. In this respect it is interesting to note that dreams are usually monochromatic. It is found that painting with black paint on white paper is probably the most satisfactory medium of graphic expression for the hypnotized patient.

TECHNIQUE OF HYPNOGRAPHY

The patient is given no indication that he is going to be asked to paint. He is hypnotized sitting at a table or desk, and repetitive movements of the arm are induced. The patient almost always closes his eyes so as to avoid witnessing the uncontrolled movement of his arm. In these circumstances, suggestions are given that his eyes open, and his gaze is then directed to the moving hand. When it is felt that the patient is hypnotized to a sufficient depth, the movement is stopped, and the patient is put to sleep with a few appropriate suggestions.

At this stage, paint-brush, black paint and a painting book are brought in from an adjacent room and are placed in front of the patient. The painting materials have been kept concealed from the patient, and the question of drawing or painting has not previously been discussed.

An interesting feature has been that the sudden and unexpected production of the painting materials has never provoked evidence of anxiety in the patient. It has been observed that, under similar circumstances in the waking state, patients almost invariably reacted with initial anxiety.

To be sure that an adequate depth of hypnosis is maintained, repetitive movements of the arm are again induced. The patient is given suggestions to open his eyes, and is strongly challenged to stop the movements of the arm. The movement is finally halted by suggestions from the therapist. The patient is then told, "Here is a paint-brush; this is the paint; this is a paint-book; I dip the brush in the paint; your hand takes the brush; it paints it; it paints it whatever it is."

These suggestions are given slowly and deliberately, if necessary they are repeated. The object is to get the patient to paint something which represents traumatic psychic material, either repressed material, or ideas of which he is aware but is unable to express verbally. The suggestions may be repeated in different words, but the non-specific nature of the suggestions is always maintained. "Your hand will paint it." "Your hand will paint something." "It paints what is in your mind." "It paints it no matter what it is." "It paints the things in your mind."

The patient usually takes the brush when it is handed to him. Many patients who have never been accustomed to drawing or painting take the brush and start painting without the slightest hesitation. Most commonly they paint the outline of some object which is associated with some significant conflict. After a little delay, most patients give the impression of knowing what they want to paint, even if they do not set about it in a very business-like manner. A few leave it to their hand to paint automatically. Others make a few tentative marks on the paper as if testing the effect of the paint on the paper. More marks are made, and then these unstructured marks are structured into something with meaning. The content of paintings started in this way is usually sexual.

Some patients have trouble in getting started. Sometimes this is due to the very natural difficulty of the patient in adjusting himself to do something new and unexpected. The hypnotized patient actually experiences much less difficulty in adjusting himself to such a task than does the patient in the waking state. This difficulty is overcome by repeating the suggestions, and if necessary adding suggestions of ease and encouragement. Sometimes the trouble in getting started is due to blocking on account of the traumatic quality of the ideas seeking expression. In such cases the difficulty is met by emphasizing the idea of dissociation. "Your hand will paint something", rather than "You will paint something".

If the disclosure of psychic material in the painting is regarded by the patient as a threat to his ego, then various resistances appear. It is important that the defences are recognized as such, so that they may be circumvented by an appropriate change of technique.

Characteristically, the brush is held very loosely. It is inclined to flop about. The impression is given that the patient is exercising no proper control over the movement of the brush. In spite of appearances, the brush is actually controlled quite well. Some patients paint very slowly and the brush moves with tiny jerks as if emphasizing the automatic nature of the process. Others paint at great speed. There may be quite a manic quality about it. One object is painted and the patient hurries on to the next which is often put in the corner of the same page. It is enlarged, and soon overlaps the first painting. The ideas seem to pour from his mind and there is a feverish haste to give them expression. One object is not completed before proceeding to the next. Paintings may be superimposed one on another. To avoid this confusion, clean sheets of paper are placed in front of the patient, and as soon as one painting appears complete, it is withdrawn. This procedure does not seem to disturb the patient or arrest the rapid flow of his ideas.

Sometimes it appears that the patient would paint on and on indefinitely. Sometimes the association between the different ideas expressed can be seen, more often there is no obvious connection between them.

When the brush runs dry of paint, it is not uncommon for the patient to continue the action of painting with the dry brush. The initiative required to dip the brush in the paint seems to be lacking. This occurs with those who paint very slowly as well as with those who paint quickly. Accordingly, when the brush is seen to be running dry, it is the custom to tell the patient, "The brush is running out of paint, I take the brush and dip it in the paint". So saying, the brush is taken from the patient, dipped in the paint and returned to the patient. This procedure has never roused the patient from hypnosis, and does not appear to interrupt his train of thought. The patient invariably takes the brush and resumes painting. This technique has proved more satisfactory than suggesting to the patient that he dip the brush in the paint himself. This has usually resulted in the paint being spilt. The painting is spoilt; and once the hypnotized patient gets paint on his fingers, he is likely to soil his clothes and get paint on everything around him.

Another minor complication is that the painting often runs off the edge of the page and is continued on the top of the desk as if nothing has happened. Some patients habitually repeat the pattern of running off the paper. This type of behaviour often seems to have a symbolic significance. Frequently the original painting represents something unpleasant; then they proceed to paint something else a long way away from the unpleasant idea. To avoid danger from this contingency, a plastic cloth is placed over the desk. This minor difficulty takes a different form when starting a new painting book. The edge of a new book represents a drop of about a quarter of an inch to the surface of the desk. Under these circumstances when the brush has run off the edge of the page, occasionally the action of painting has been continued with the tip of the brush gliding along in the air just above the surface of the desk. When this happens the patient is told, "Your brush has run off the paper, I lift up your hand and put it back on the paper". The patient's hand which is holding the brush is lifted back on the paper, or a new piece of paper is substituted. Again, this procedure does not appear to disturb the patient.

As far as possible, care is taken to see that the patient does not smudge the painting. It is not uncommon for the patient to put his hand on the wet paint. Sometimes this is done in apparent oblivion of what he is doing; sometimes it is done in pointing to some particular part of the painting; but often when abreacting his emotion, the patient rubs his finger into the picture, or thumps it with his fist.

When the patient has expressed the idea which is seeking expression, the brush is often dropped or allowed to flop about aimlessly, and the painting may be spoiled. To avoid this, as soon as the patient appears to be finished, he is told, "I take the brush and put it down", and the brush is taken from him. Other patients when they have given expression to a particular idea, remain immobile and statuesque, staring at the painting with unblinking gaze; others go into a deep sleep and may slump forward on to the desk. Sometimes when the painting is finished, the patient continues to paint over the outline again and again, apparently indefinitely, until the brush is taken from him.

There is great variation in the amount of emotion displayed during the painting. Some patients project highly traumatic material with very little outward show of emotion; others abreact with considerable violence. Agitation and restlessness are common. Some express their love or hate or aggression in words. Some would destroy the object of their hate, or fondle the object of their love with symbolic gestures at the painting. A loved object is caressed time and time again with the tip of the brush; sometimes with so much preoccupation that the projection of other ideas ceases. The action continues until the brush is taken from the patient. At other times the brush is bashed down on the paper to strike a hated figure. A frequent form of abreaction is an unverbalized phonation of emotion. Sometimes the patient becomes more and more preoccupied with a rhythmical action of painting. The sexual significance becomes obvious and is confirmed by the patient's associations.

The Associations

The main value of the hypnotic paintings in therapy lies in the patient's associations with the paintings. The associations are obtained while the patient is still in the hypnotic state. This seems quite important. As a general rule, as long as the patient is hypnotized, the potentially traumatic character of the ideas expressed in the painting and verbalized in the associations does not disturb the patient. Because of the obvious dangers, experience in obtaining associations to the paintings in the waking state has been very limited. But from experience to date, it appears that the patient's defences often become so active that he is denied conscious knowledge of the content of the paintings and can produce no associations at all. Alternatively he produces mere screen associations. On the other hand, if the patient becomes aware of the meaning of the painting, the knowledge may be so disturbing that anxiety reactions result.

Sometimes patients start to talk spontaneously. They mutter their thoughts as they do the paintings. Some have an air of abstraction about them. There is no emotion; it would seem that they were watching the event from a great way off. With others, the spontaneous muttering is accompanied by great emotion, and it is obvious that the patient is actually reliving the traumatic experience.

When the patient rushes to express one idea after another, he is allowed to complete a series of paintings before giving his associations, otherwise the associations are obtained as each painting is finished.

The patient is given such suggestions as, "You won't wake up until I tell you, you can talk and you won't wake up. You talk in a dream and you don't wake up. What is this that your hand has painted?" The suggestions can be repeated. If thought advisable, emphasis can be placed on the dissociation. "Your voice talks and you don't wake up." Alternatively the dream-like qualities of the situation can be stressed. Patients almost invariably keep an unblinking gaze on the picture. There is however a good deal of variation in the way the associations are given. The voice may be quite clear and resemble the patient's ordinary speaking voice. More often it is a soft mumble which is difficult to hear. The ideas may be expressed fairly clearly and logically, with reasonable use of syntax. In other cases, the thought is rambling and incoherent. There is no attempt at logical expression. Unessential words are omitted. Speech may be reduced to nouns and verbs, with a few emotionally coloured adjectives. Other patients drawl out a whole series of associations and will continue for some time without any prompting from the therapist. The associations are almost always given slowly and with considerable pause between successive ideas. This has the happy result that it is usually quite easy to write down the associations verbatim in longhand. After some trial it was thought that the presence of a stenographer had a slight, but definite inhibitory effect on the patient, so it was discontinued.

The giving of the associations is often accompanied by a good deal of abreaction. Patients act out the traumatic event, sometimes weeping in sadness or guilt, sometimes screaming in rage. On the other hand, some patients verbalize extremely traumatic material and the while maintain a fixed, glassy stare and give no outward signs of emotion. The pattern of behaviour is constant with the individual patient and tends to be repeated in subsequent sessions.

As with the emotional content of the associations, so also ideational content varies greatly. In the main, the ideas expressed in the associations are those of basic human conflict. They are usually stark and unadorned. There is no watering down of the expressions to make them more acceptable to the listener. The ideas for the most part relate to biologically significant material, to love and hate, to guilt which is often sexual guilt, to striving for acceptance, and to doubt in the reality of God. Feelings of loneliness and the essential isolation of the individual are common themes. The period in time to which the associations refer is anything from the present day to childhood and infancy.

A clothed female figure produces the association, "My wife, I hate her". An outline of two naked figures lying together with a shapeless blob between them is, "Mum, dad, me".

In relation to events in the past, particularly childhood experiences sometimes the patient will appear to be describing the event as he witnesses it, at other times the patient is actually reliving the experience. Both mechanisms involve spontaneous regression, but the character of the regression is different in the two cases (10).

There is nothing vague about the associations. They are blunt and realistic and to the point. In this respect there is a marked difference from the usual associations of waking psychotherapy.

Usually the patient's associations are isolated ideas, and are not connected together by any logical sequence, but are each evoked by the central theme of the painting. Occasionally the associations tend more to resemble those of the waking state. One idea leads to the next, and soon the thought is far away from the content of the painting. It is the practice in such cases to bring the patient back to the painting from time to time, in the belief that the idea contained in the painting is the psychically significant conflict. It is often possible to do this by merely pointing to the painting. When a patient has given a long series of associations, it is not uncommon for him to fall into a deep sleep. A patient who gives many associations on one occasion, usually does likewise on other occasions.

The significance of the object depicted is often quite clear to the therapist, but sometimes the painting has no meaning at all without the patient's associations. This is so when the painting represents the place where some traumatic incident occurred.

It is clear that the expression of suppressed and repressed material by painting under hypnosis involves a good deal of psychic stress. Accordingly, it is thought wise to give the patient a rest after a series of paintings has been made. He is told, "You won't wake up until I tell you; you see the easy chair; you stand up; you won't wake up; you go over to the chair; you flop down in the chair; you go deep asleep, deep asleep; noises can't disturb you; you won't wake up until I tell you." The patient sometimes needs a little physical help in moving to the easy chair, but after the stress of the session, sleep comes easily with very little suggestion.

Patients who are given a half hour sleep after the session become calm and composed without any specific post-hypnotic suggestions. They are thus in a much better state to leave the consulting room and return home. For medico-legal considerations rather than doubt as to the completeness of the patient's recovery from the hypnotic experience, it is the practice to insist that the patient be accompanied home by a relative or friend.

While the patient is asleep, the painting materials are removed from the room and the subject is not discussed unless the patient brings it up. This is to avoid anxiety between the treatments. At the beginning of the next session, the patient is given the opportunity to discuss the matters of the previous session.

Post-hypnotic suggestions of amnesia for the session are not usually given. It is ordinarily left to the patient to recall what material he is capable to bear, and repress the remainder. The degree of spontaneous amnesia varies from a complete blackout for the whole period of hypnosis, to a crystal clear memory of all the details of the painting and the accompanying subjective feelings. Most commonly there is a partial amnesia. The patient remembers what he has done in a general way, but remembers it only vaguely.

Dangers and Difficulties

The dangers of hypnography are related in the first place to the dangers of hypnosis, and secondly to the dangers of an analytical type of psychotherapy. The dangers of hypnosis are discussed in several recent works on the subject (2, 3, 7, 11), as well as by the earlier writers (12, 13, 14) and are beyond the scope of the present paper. The other danger arises from the too sudden awareness of repressed traumatic material. This is a danger inherent in any form of analytical psychotherapy. It is probably greater in hypnoanalysis than in waking analytical techniques, and it is probably greater in hypnography than in verbal hypnoanalysis. The reason for this is that the spoken word is easily forgotten, repressed, blotted out or denied by appropriate defence mechanisms. On the other hand, the same idea expressed in the symbolism of the painted object instead of the symbolism of words, cannot be handled so easily by the psychological defences. Accordingly, as a general rule, it is thought prudent to avoid showing the paintings to the patient in the waking state. Greater experience may prove that this precaution is unnecessary. So long as the patient remains hypnotized, it seems that there is little danger in confronting him with paintings representing even acutely traumatic material and obtaining his associations to the paintings. Minor anxiety attacks have occurred in hypnotized patients who have suddenly become aware of the sexual significance of their paintings, and a patient who likewise became suddenly aware of her aggression. These anxiety attacks were managed quite easily by increasing the depth of hypnosis, and giving the patient a rest.

Of the difficulties, there are the common difficulties of inducing hypnosis. When the surrender of voluntary control to hypnosis is interpreted by the patient as a threat to his ego, he unconsciously defends himself against hypnosis (9). It is important to regard difficulties in hypnotizing in terms of the patient's defences. These defences can usually be circumvented quite easily, but may resist a direct attack. Nearly all difficulties in hypnosis, whether in the induction or in getting the patient to paint, represent defences by the patient, and are the signal for an appropriate modification of technique on the part of the therapist in order to deal with the situation.

The integration of hypnography with waking psychotherapy represents a problem of management. The material disclosed in hypnography is intimately related to the patient's illness, at the same time its nature is such that any sudden disclosure of its meaning to the patient would be courting disaster. To make any attempt to deal with the content of the painting as soon as the patient is awakened from hypnosis means prolonging the session for a considerable length of time. At the beginning of each session, the patient is always allowed time to discuss any matter that he has a mind to ventilate. By this means, rapport is maintained, and the patient is given a chance to settle down and become composed prior to hypnosis. Then hypnosis is induced, the paintings are made and the associations obtained. Before waking, the patient is given a rest in hypnotic sleep. All this takes time, and the average length of a session is about an hour and a half. To proceed to waking psychotherapy would probably take as long again. Another difficulty is that after the hypnotic sleep, the patient is composed and in a fit state of mind to return home. This calm might easily be disturbed by psychotherapy. Accordingly, the waking psychotherapy has been done at separate sessions, interspersed with the hypnotic sessions. The general principle has been that, if the patient shields himself against the material disclosed in the hypnotic sessions by amnesia or rationalization, it is generally taken to mean that he is not yet ready for waking psychotherapy in this particular area. It is found that after several sessions of hypnotic painting, the patient is more prepared for waking psychotherapy. It is anticipated that experience will bring better ways of integrating the waking and hypnotic aspects of therapy, but it is an observed fact that many patients obtain symptomatic relief from hypnography without the traumatic material being fully worked through at a conscious level.

USES OF HYPNOGRAPHY

With psychiatry already over-full of complicated procedures that are technically difficult to master, it is well to consider whether the technique described has anything of real value to offer. Its possible uses relate to two fields, to therapy and research.

In hypnoanalysis there is the fairly common difficulty that the patient does not verbalize his conflicts readily. Some patients seem to have an inherent difficulty in talking under hypnosis, yet many of these patients will express themselves quite readily in hypnography. Sometimes the difficulty in talking under hypnosis is a defence, the patient using the hypnotic situation to defend himself. The meaning of his behaviour is, "A hypnotized person cannot talk properly. I can't talk about these things." This type of defence may be circumvented by getting the patient to project his conflicts graphically. On first consideration this would seem unlikely. It would be thought that the patient who defends himself by an inability to express his conflict in words, would likewise defend himself by an inability to express his conflict in painting. But experience suggests that this is not so. The reason would appear to be in the greater element of dissociation in the hypnography. This can be emphasized, "Your hand paints it. You don't paint it. It's your hand that does it." Once the painting has been initiated by this dissociation, the patient will usually carry on without further stressing of the dissociation, and in subsequent sessions suggestions can be given increasing the patient's own responsibility. "You paint it, you paint it yourself."

Whatever the true explanation, the observed fact is that many hypnotized patients who do not express themselves readily in words, do so quite readily in painting.

There is another factor, The nature of some abstract ideas is such that it makes their expression in words very difficult. Sometimes such ideas can be expressed graphically. This concept is exemplified in both modern art and schizophrenic paintings. Some of the symbolic hypnotic paintings come into this category. For instance, a patient with no overt awareness of homosexual drives depicted himself as two babies, one male and one female, joined together.

In verbal hypnoanalysis there is often the tendency for the patient to wander off into irrelevancies by the process of association. One idea leads to another, and soon the patient is far from the area of conflict. This happens very much less when the patient is giving associations to his painting.

Another way in which hypnography differs from verbal hypnoanalysis is that there is a greater abruptness in the change of subject matter. In hypnography there is a greater tendency to the unexpected and spontaneous production of psychologically important material. There is much less continuity of thought between successive subjects.

Many authors refer to the necessity of dealing with recovered material in psychotherapy in normal waking consciousness (15). But it is an important clinical observation that many patients gain symptomatic relief from hypnography without adequate waking psychotherapy to account for their improvement, and without specific therapeutic suggestions. Those authors who refer to the necessity of waking psychotherapy deal with verbal hypnoanalysis. It may be that the expression of ideas in painting has a rather different therapeutic effect from the expression of the same ideas in words. There is at least some evidence to suggest that this is so in the waking state (16, 17, 18), but some authors doubt this (18). When a patient expresses a conflict in painting, he is literally confronted with the problem. He is faced with the conflict. This is quite different from the patient merely talking about it. It is felt that the process of expressing the repressed material in a symbolic, graphic way, and giving verbal associations, is in itself of therapeutic value. For example, one patient drew an outline of a gallows on several successive occasions, each time saying that she was going to be hanged because she was going to kill the man who had wronged her. On account of the highly traumatic quality of the material, no attempt was made to hurry the psychotherapy. The theme gradually dropped out from subsequent hypnotic paintings, and was replaced by more superficial present day conflicts. It appeared that the gallows theme had, to some extent, been resolved, or had at least lost some of its traumatic quality during the hypnography. Later the subject was ventilated in psychotherapy without trouble.

Research in psychiatry is always under a handicap on account of the intangible and ill-defined nature of varying states of mind. Descriptive notes are playthings of the subjectivity of the therapist, the tape recorder is cumbersome and difficult to use to full advantage. Hypnotic paintings on the other hand, give a permanent record which is easily filed, and is in itself a direct product of the patient.

The records provide fascinating material for the study of symbolism.

An important factor in assessing the value of the hypnotic paintings in research is that the paintings do not appear to be contaminated by conscious elaboration. On the first occasion with each patient when hypnography is attempted, the patient has no idea that he is going to be asked to paint. If, as is most common, the patient does not have a complete amnesia of the session, it would be expected that he would ruminate over the matter and consider what he would paint on the next occasion. Accordingly, it would be expected that the paintings of the second and subsequent sessions would differ from those of the first session on account of this conscious elaboration. In actual fact, no significant differences can be observed between the paintings. Hence it is believed that the paintings are not contaminated by conscious elaboration.

Any final assessment of the value of hypnography in treatment must bear in mind that it is not a form of therapy per se, that it is just a special technique in hypnoanalysis which is itself a special technique in psychotherapy. As such it must be integrated with waking psychotherapy, with verbal hypnoanalysis and with the indirect suggestive effect of the hypnotic situation.

SUMMARY

Hypnography is a technique in hypnoanalysis in which the hypnotized patient projects psychic material in black and white painting, and, while still under hypnosis, gives associations to the painting. It is a useful technique with patients who do not talk readily under hypnosis. There are some reasons to believe that the graphic expression of conflicts has some therapeutic effect beyond the verbal expression of the same conflicts.

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EXPERIMENTAL STUDIES OF A PERCEPTUAL ANOMALY

IV. THE EFFECT OF MONOCULAR VISION ON ROTATION

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A. INTRODUCTION

THIS is the fourth of a series of articles reporting an investigation into the Block Design Rotation Effect. This effect was first observed in some patients while they were doing the Goldstein Block Design Test, in which the subject has to reproduce patterns with the aid of coloured cubes. Some patients, while completing the designs correctly, would leave the completed pattern in a rotated position without apparently being aware of this (2). Such rotation frequently reached 45° (Illustration 1) but rarely exceeded this amount.

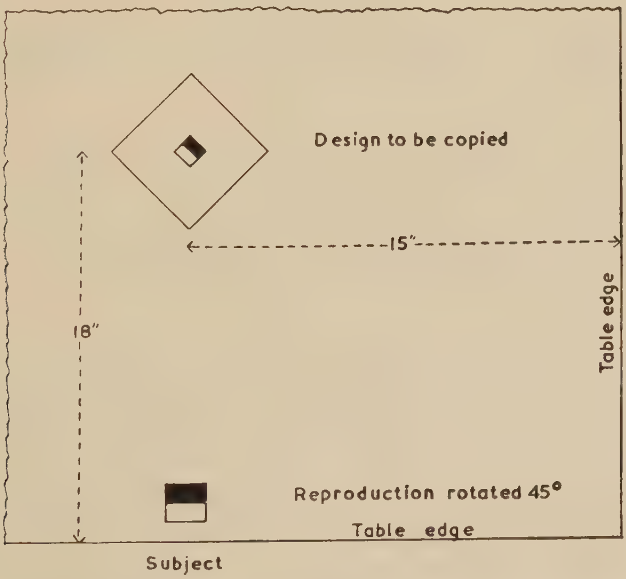

FIG. 1

Example of card from Block Design Rotation Test with reproduction rotated 45°.

Subsequent articles have resulted in two main findings:

(*a*) The rotation effect occurs to a significantly greater degree among brain-damaged psychiatric patients than among non-brain-damaged psychiatric patients—at least within the limits of the samples tested (3).

(*b*) The rotation effect tends to appear according to definite laws. The three main laws so far established are:

i. When the line of symmetry of a design (the line of symmetry being defined as the line which divides the design into mirrored halves) is at an angle to the vertical axis of the total visual field, as in c and d of Illustration 2, the tendency to rotation will be increased. When the line of symmetry is parallel to the vertical axis of the visual field, then the tendency to rotate will be lessened.

ii. When the design is in a diamond orientation as in c and d of Illustration 2, the tendency to rotation will be increased; when the design is in a square orientation, as in a and b of Illustration 2, the tendency to rotation will be lessened. This orientation is referred to as the figure shape.

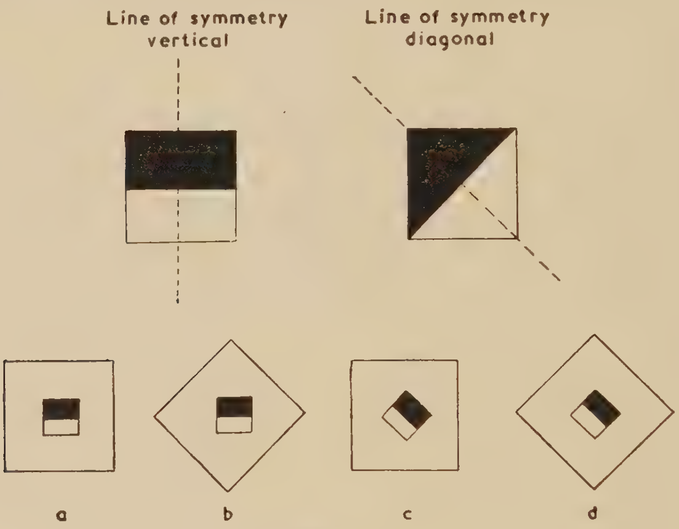

FIG. 2

Square oriented figure in Cards a & b.
Diamond oriented figure in Cards c & d.
Square oriented ground in Cards a & c.
Diamond oriented ground in Cards b & d.

iii. When the ground (which is defined as the 6 ins. by 6 ins. white card on which the design is placed) is in a diamond orientation, as in b and d of Illustration 2, the tendency to rotation will be increased; when the ground is in a square orientation, as in a and c of Illustration 2, the tendency to rotation will be decreased.

These laws are valid only for a special form of the Block Design Rotation Test (2 and 4).

From certain considerations (4), it was deduced that brain-damaged patients rotated more than non-brain-damaged patients because the former were deprived of many of the visual cues which would counteract the rotation-inducing factors in the cards described above. In order to test this theory, it was further deduced that normal subjects, deprived of most of their visual cues, would also rotate to the same extent as brain-damaged patients and in accordance with the same laws. This experiment was carried out by using a "field-reducer", consisting of two halves of a table-tennis ball set in felt so that each eye was covered. In one of the halves, however, a small hole 6·5 mms. in diameter was pierced so that the subject obtained restricted vision. This experimental group also worked on black felt, while the control group used full vision and worked on standard graining obtained by placing wallpaper that looked like grained wood on the table. Under these conditions, both deductions were verified, i.e., the pseudo-brain-damaged group (as the restricted vision group was called) rotated as much as the brain-damaged group and according to the same laws. The pseudo-brain-damaged group produced a mean rotation score of 7·18° (SD 4·01) compared with a mean rotation score of 8·13° (SD 5·43) for the brain-damaged group, the difference being insignificant. The normal control group used in this experiment produced a mean rotation score of 4·42° (SD 3·05), being significantly differentiated from the pseudo-brain-damaged group at the ·01 level of confidence.*

It was observed, however, that there was a possible source of error in the experimental design, in that the pseudo-brain-damaged subjects were not merely deprived of most of their visual cues compared with the control group, but were further restricted in that they were allowed to use only monocular vision compared with the binocular vision available to the control subjects. Since monocular vision itself might account for the differences in rotation, a control experiment became necessary. (The further possibility that the black felt alone led to the increased rotation in the pseudo-brain-damaged group has been separately tested and will be reported in a future paper.)

B. THE EXPERIMENT

i. *Purpose*

To test the hypothesis that monocular vision by itself would not lead to a significant increase in rotation in a group of normal subjects.

ii. *Materials*

With one exception, the experiment was carried out in the same way as that on the pseudo-brain-damaged subjects, described by Shapiro (4). The experimental group, which of course used only monocular vision in the present experiment (the other eye being covered by an eyeshield) worked on graining identical with that for the control group and not on black felt.

iii. *Procedure*

All subjects were tested in two separate sessions, separated by a period of 24 hours. In the first session, they were given the Vocabulary, Similarities and Block Design sub-tests of the Wechsler Form I and in the second session the Block Design Rotation Test. The eyeshield was put on before entering the testing room and not removed until the subject had left the room. It was worn throughout both test sessions. Subjects were asked to put the eyeshield over whichever eye they preferred, the same eye being covered in both sessions. A simple test of eye dominance was carried out after all testing had been completed.

iv. *Subjects*

Twenty subjects were used in the experiment, 13 being female nurses and 7 being male subjects from a Community Centre. All were under 30 years of age and were volunteers. These subjects were selected from a total of 26 tested; two being rejected because they usually wore glasses, two because the film record was spoiled, one because of foreign nationality, and one because of a history consistent with the possibility of brain-damage. All the subjects used were therefore free from gross visual defects, had a history inconsistent with the possibility of brain-damage, and were of British nationality.

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* Due to an oversight, the level of confidence for this difference was shown in the previous article (4) as ·03, whereas in fact it should have been shown as ·01 (one-tail test).

v. *Results*

Table I shows the means, SD's and t-tests on the sum of the raw scores of the three Wechsler sub-tests combined, and on rotation for the three relevant groups of subjects—original controls, pseudo-brain-damaged groups, and the group used in the present experiment (the "monocular" control group).

It is clear from Table I that the three groups do not differ from each other with respect to mean score on the composite score on the Wechsler, that the monocular control group does not show any significant increase in rotation score when compared with the original control group, but is significantly differentiated from the pseudo-brain-damaged group at the ·03 level of confidence.

TABLE I

Showing Means, SD's and t-tests for Control, Pseudo-Brain-Damaged and Monocular Control Groups on composite Wechsler Score and Block Design Rotation Test.

1. Means and SD's	Groups		
	Original Control Group	Pseudo-Brain-Damaged Group	Monocular Control Group
	N=20	N=20	N=20
(*a*) Sum of raw scores on three Wechsler subtests:			
Mean	66·83	63·90	62·70
S.D.	10·23	13·31	13·91
(*b*) Mean rotation	4·42°	7·18°	4·93°
Score per card*	3·05	4·01	3·34

2. t-tests

Groups Compared	Wechsler		Rotation	
	t (Uncorrelated)	Significance level	t (Uncorrelated)	Significance level
Controls *v.* Pseudo-Brain-Damaged ..	0·78	N.S.	2·44†	·01‡
Controls *v.* Monocular Controls ..	1·07	N.S.	0·51	N.S.
Monocular *v.* Pseudo-Brain-Damaged	0·28	N.S.	1·92	·03‡

* Omitting failures, etc.

† t calculated from mean rotation scores for each subject, not from raw scores as in Shapiro (4).

‡ One-tail test. In other comparisons a two-tail test was used.

C. DISCUSSION

Since the theory which attempts to account for the appearance of the rotation phenomenon in normal subjects utilizes the availability or non-availability of visual directional cues in space as a significant variable, it seemed important to take into account the possible effect of monocular versus binocular vision. It has been shown that monocular vision apparently does not reduce the availability of such cues. An interesting parallel to this finding is provided by an experiment by Holway and Boring (1). They were concerned with the problem of apparent visual size of objects compared with their "objective" retinal size and investigated changes in apparent size when visual cues were reduced. Using four levels of cue-availability—full binocular vision, monocular vision, field-reducer vision (similar to that of the pseudo-brain-damaged group) and "tunnel" vision (in which the subject looked through a tunnel of black cloth and all external stimuli were removed)—they demonstrated that there was a direct relationship between the amount of cue-reduction and the apparent size of the object. As the number of visual cues was reduced, so the apparent size of the object became closer to its objective or retinal size, i.e., the constancy phenomenon declined. They found that monocular vision affected the phenomenon insignificantly, but that field-reducer or tunnel vision had a pronounced effect. These results are very similar to those reported in the present series of articles, that is, the subject is able to counteract the rotation-producing stimuli (diamond-shaped figure and ground and diagonal line of symmetry), provided the usual visual indications of verticality and horizontality are available. If these indications are artificially removed, however, many normal subjects begin to rotate to a considerable extent, since they will now be much more dependent on the rotation-inducing cues.

D. Summary

In a previous experiment which showed that normal subjects deprived of many visual cues ('pseudo-brain-damaged' group) would behave on the Block Design Rotation Test like brain-damaged patients, it was noticed that the pseudo-brain-damaged subjects were utilizing only monocular vision, compared with binocular vision for the control subjects. The experiment reported in this paper was designed to discover whether monocular vision alone would be sufficient to induce the rotation effect. The rotation scores of 20 normal, 20 pseudo-brain-damaged and 20 'monocular' subjects were compared. The monocular group differed significantly on rotation score from the pseudo-brain-damaged group and could not be differentiated from the control group.

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THE BENDER-GESTALT TEST AND PSYCHONEUROTICS

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Since the publication of Bender's (3) "Visual-Motor Gestalt Test and its Clinical Use" many attempts have been undertaken to validate the clinical findings which she outlined in her Monograph.

In his "Tentative Guide to the Administration of the Bender-Gestalt Test" Hutt (7) did more than anyone else to put into practice the clinical use of the Bender-Gestalt, but his finding on Psychoneurotics have not been confirmed by empirical studies. However, it is of interest and encouraging to find many of the subsequent empirical studies substantiating most of the original clinical uses outlined by Bender and Hutt.

Both Bender and Hutt recommend the use of the Tachistoscopic method (presenting the nine Wertheimer figures one by one with a five-second exposure) and the copy method (reproducing from each card as it lay before them). None of the empirical studies, to the writer's knowledge, makes use of the Tachistoscopic method. This seems surprising since Bender affirms that by this method the level of maturity may be ascertained and Hutt postulates that it uncovers primitive trends and it may therefore be useful in incipient psychosis and brain damage. In fact, in his clinical findings on Psychoneurosis, Hutt takes into consideration both methods when he sums the pattern of responses of the psychoneurotics.

In an attempt at quantification Pascal and Suttell (8) have used only the copy method and come to the conclusion that it does not discriminate neurotics from normals, and Woltman (1) affirms that it fails to show "Personality disturbance in the neurotic personality because they seldom invade the Visual-Motor Sphere".

Such a statement appears to ignore the Gestalt concept since any pattern of action, spontaneous or deliberate, may be expected to vary in maturation, levels of growth, pathological states be they either organic or functional. The time to organize the Gestalt is of clinical, and diagnostic importance. A concentration on the quantification and validation of the copy method ignores completely the principle of Gestalten.

Yet, the step forward, as the result of Pascal and Suttell's quantification and validation, is so great that one is grateful for such a scoring system which gives:

(1) A prognostic score in mental illness. Pascal (8) and Suttell, Swensen and Pascal (10).

(2) Alcoholic signs. Curnutt (4).

(3) Malignancy. Hanvik and Andersen (6).

(4) Differentiates normals from psychotics. Robinson (9).

(5) Gives organic signs. Pascal and Suttell (8).

(6) Correlates highly with EEG in children. Hanvik (5).

However, when the Tachistoscopic method is used one finds that the "Personality disturbance in the neurotic personality" does invade the Visual-Motor Sphere.

The Tachistoscopic results are scored as in the copy method. This may be questionable but it is justifiable when one accepts the Gestalt principal in relation to a time factor in a temporal situation. It is for this reason that both the copy and Tachistoscopic method were used and scored according to the Pascal and Suttell method and third score added namely the difference between the copy and Tachistoscopic scores.

Herewith are the analyses of variance between three groups: normals, anxieties, and hysterics when scored according to Pascal and Suttell on the Tachistoscopic administration.

Anxieties and Hysterics

	Sum of Squares	df.	Estimate of Variance	F.	Level of Significance
Between ..	1187·08	1	1187·08	6·006	
With	11462·77	58	197·634		
Total	12649·85	59	214·404		(5%)

Normals and Anxieties

	Sum of Squares	df.	Estimate of Variance	F.	Level of Significance
Between ..	2411·072	1	2411·072	15·308	
With	10712·3	68	157·504		
Total	13123·372	69	190·194		(1%)

Normals and Hysterics

	Sum of Squares	df.	Estimate of Variance	F.	Level of Significance
Between ..	2919·6	1	2919·6	13·283	
With	14946·4	68	219·8		
Total	17866·0	69	258·933		(1%)

Again the Tachistoscopic method has been found by the writer to be that which is most sensitive to changes when working with pre- and post-leucotomy cases. The difference score appeared to pick out those whose prognosis was favourable. Patients, who, from the Psychiatric Social Worker's Reports, appear to have made a good adjustment give a smaller difference score while poor adjustment cases obtain a large difference score. It has been further found in clinical experience that this method is also sensitive enough to pick out the insidious organically involved patients.

SUMMARY

The Tachistoscopic method in presenting the nine figures of the Bender-Gestalt Test is recommended as scored by Pascal and Suttell scoring norms. This method and scoring is much more sensitive in picking out personality disturbances than the copy method. A third score is suggested namely, the difference score. Analyses of variance are given on three groups, normals and anxieties, normals and hysterics, anxieties and hysterics. Here it is found that the Tachistoscopic method discriminates at the 1 per cent. level of significance between normals and anxieties, and normals and hysterics and discriminates further at the 5 per cent. level between anxieties and hysterics. Those tables are inserted merely to suggest the possibility that further work on this method is justifiable with a hope that validitional studies might be forthcoming.

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AN EXPERIMENTAL UNIT FOR THE COMMUNITY TREATMENT OF NEUROSIS

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INTRODUCTORY

THE object of this paper is to present a preliminary report on an experimental unit within the grounds of the mental hospital, but outside the Mental Treatment Acts, for patients suffering from the psychoneuroses. It is necessary, by way of introduction, to give some account of the way in which this unit came into being. One year before it was opened, we became particularly conscious of the problem of institutionalization, and attempted to study the forces active within the mental hospital which lead a patient, for the most part unconsciously, into a state of institutionalization. This is, of course, no new problem; in every mental hospital there is a nucleus of patients, of varying diagnostic categories, who no longer need to remain in hospital on account of the original symptoms or illness which brought them there, but who, under the subtle influence of the institutional life, have become quite incapable of returning to the outside world. This process of institutionalization cannot be dealt with extensively here, but briefly, the forces at work in bringing about this state are felt to be, firstly, those that tend in many minor or subtle ways to relieve the patient of all responsibility for himself, so that he ceases to be aware of the need to tackle his problems seriously, and, secondly, the authoritarian basis of staff and staff–patient relationships which, however benign, requires an attitude of submission on the part of the patient which readily leads to loss of initiative, and to institutionalization. It was, therefore, decided to reverse this process as completely as possible with a small group of patients, to see what further light could be thrown upon the problem.

It so happened that in a corner of the grounds of the hospital was a small isolation block, one half of which had not been in use for some ten years. This building was in a very neglected state of decoration and repair, and was virtually unfurnished. In the spring of 1952 we selected a group of some seven or eight male patients either suffering from neurosis, or entering upon a remission of a psychotic illness. These patients were directed to spend their day in this disused building and no direct guidance was given as to the way in which they should occupy their time. They were told that the working hours of the day were to be spent there and that it was up to them to decide what they would do. They were further told that the doctor would meet them twice a week as a group, when they would discuss any problems which arose in organizing their working day. No assistance of any kind was given until the doctor was satisfied that they could not get any further with a particular task without his help. After an initial period of about fourteen days' complete helplessness, they began to formulate some plans for re-decorating the building and renovating the garden. Contact with the utility departments over the problem of materials, e.g. paint, cement, etc., was encouraged directly between patients and the relevant department, without intervention by the doctor. One male nurse spent his time with the group, but understood that his task was to be a passive background figure who offered no direct advice and exerted no pressure regarding work or behaviour. When patients brought problems to him he was instructed to encourage them to discuss the matter as a group and try to reach a decision on their own.

After a few months the patients were encouraged to do their own cooking on an old-fashioned range, and a little later they lived day and night in this building, without nursing supervision at night. Gradually we came to see that in a unit of this type every incident of the patient's life became potentially material for use in his treatment, provided he could be brought to discuss his daily problems at the group meetings. Results from this method of treatment were encouraging, and we began to learn ways of using the daily life of the patient to keep him aware of his inner problems. Throughout this phase of the experiment we became increasingly aware of the possibility of applying the lessons learnt to the mental hospital as a whole, particularly in those wards where the recent admissions were housed.

In April, 1953, it was decided to open a new unit for the treatment of the psychoneuroses, and in view of our experience with the rather crude experiment referred to above, we decided to develop this unit on similar lines, and to use it as a research project from which we might learn how to combat the problem of institutionalization more effectively in the main body of the mental hospital. The rest of this paper is a description of this unit, together with some discussion of the problems arising, and the lessons learnt.

Another factor, common to all mental hospitals, which influenced the development of this project, was the impossibility of providing individual psychotherapeutic treatment for the number of patients who might benefit from it. The result of this situation tends to be that the doctor selects one or two patients who interest him, and devotes an hour or two a week to them, while the rest obtain no direct help along psychotherapeutic lines. In the neurosis unit which is to be the subject of this paper, twenty patients obtain very concentrated psychotherapeutic help with much greater economy in doctors' time.

General Description of the Unit

The unit is housed in what was formerly an isolation block for Warlingham Park hospital. This block stands alone in a corner of the grounds and has its own small garden. There is accommodation for ten male and ten female patients in two wings, separated by a small central block containing the medical office, communal dining-room and kitchen. Both wings have their own sitting-room, a dormitory for six patients, and two small bedrooms accommodating two patients in each. At the back of the block were three rooms in a very bad state of repair, which the patients have been turning into occupation rooms.

The selection of patients has been on a basis of age and diagnosis, rather than on any careful assessment of prognosis. Few patients have been admitted over the age of forty years, and all have had an initial diagnosis of psychoneurosis. Any selection from the point of view of prognosis has been confined to the experience and intuition of the doctor rather than to the application of accepted objective criteria. Patients showing gross chronicity and low intelligence have on the whole been excluded in this way, but the length of illness has not been regarded, in itself, as a bar to admission.

It has never been the practice in this mental hospital to fix a definite period of stay in hospital at the time of admission, but patients are encouraged to put in their notice of intention to leave when the doctor considers them sufficiently recovered. This lack of a fixed date of discharge makes it very easy for the neurotic patient to lose all sense of urgency in tackling his problems, especially as his symptoms are so often relieved by the relatively secure environment of the hospital. Furthermore, it is a common experience for symptoms to return in all their severity a few days before an agreed date of departure, thus forcing an extended stay in hospital.

In order to find some remedy for this situation, patients admitted to the neurosis unit are told before entering that the treatment lasts two months, at the end of which time they will be discharged, whether or not they are free from symptoms. Furthermore, they are told that it is unlikely that they will be completely cured or symptom-free when they leave, but that the aim of the treatment is to give them sufficient understanding of their problems, and confidence, to recommence work. and continue treatment as an out-patient. When patients leave, they are placed in an out-patient group and encouraged to attend a social club, to which all patients in the unit are taken every Monday night during their two months' stay in hospital.

The sexes mix freely. There is a common dining-room, and they are encouraged to mix socially in the two lounges. The unit is run on the principle of a maximum of self-government with a minimum of rules. In keeping with this system a minimum of staff is employed in the unit, consisting of one sister and one nurse working on a shift system. There is no domestic staff and no nurse on duty at night, the unit being visited three times during the night by the night-superintendent of the mental hospital. At the beginning of the experiment we had no clear picture of the role of the nursing staff. We did not know what role they should play, but were clear about the role we did not want them to play. It was part of the experiment to reduce to a minimum the authoritarian role of the nurse upon which her position very largely depends in the traditional mental hospital culture. She therefore, from the beginning, avoided giving directions to the patients as far as possible, and instead attempted to establish a relationship with them on a basis of friendship and understanding. The clearer understanding of her role in the treatment of neurotic patients is part of the problem under investigation in this experiment.

The treatment of the patients consists of a series of discussion groups with a planned background of work and recreation. All the domestic work of the unit, including about half the cooking, is done by the patients, who are encouraged to work out their own rota of duties. Over and above this basic necessary work, they are encouraged to work at other tasks, such as decorating the occupation rooms, cultivating the garden, making lampshades, chair-backs, etc., for the sitting-rooms and dormitories. In general, patients are encouraged to take part in occupations which are of benefit to the unit as a whole, rather than to make articles for their own use. As already stated, on one evening during the week all the patients are taken in the hospital bus to an out-patient club in Croydon which is to constitute part of their follow-up treatment when they leave. Another evening is given up to a social organized by the patients themselves and held in the ladies' sitting-room. Two afternoons each week are spent painting pictures which are then used as the basis of one of the group meetings.

With this general programme as the background to treatment, the patients meet for group discussion with a doctor for five separate hours each week. The organization of these group meetings is shown in the following table:

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	11 a.m. to 12 noon Group A Dr. X.		11 a.m. to 12 noon Group B Dr. X.	11 a.m. to 12 noon Group A Dr. Y.	10 a.m. to 11 a.m. Group B Dr. Y.
2 p.m. to 3 p.m. General meeting of all patients and staff.	2 p.m. to 3 p.m. All patients (pictures) Dr. Z.			2 p.m. to 3 p.m. All patients (life story) Dr. Z.	

It will be seen from this table that three doctors share the group work, and the patients are split into two groups for half the meetings. This last arrangement constitutes a compromise between the necessity in such a unit of preserving a strong community feeling by meeting all the patients together, and the experience that patients participate more actively in a small group than in a large one.

The Monday afternoon meeting attended by all patients and staff was originally intended for the discussion of problems directly concerned with the organization of the unit. Experience soon revealed that it was impossible to restrict such problems to one group during the week, and this group is now usually devoted, with the Friday afternoon group, to the presentation of a life-story. The life-story consists of an account of his life as he sees it in relation to his illness, written and read to the group by a patient. This is followed by an open discussion of the material thus presented, and finally the doctor sums up what he feels is to be learnt from the story and the discussion. In general, patients are not encouraged to write a life-story until they have been in the unit for four weeks and have thus had some opportunity of seeing wherein their main problems lie.

The Tuesday afternoon group is an occasion when any patient may present one or more of his paintings to the group for discussion, and interpretation by the doctor. All the morning groups are open for completely free discussion, but may often be used by the doctor to direct attention to one particular patient who appears to be in special difficulty in getting help from the groups.

When any special problem affecting the life of the unit occurs, e.g. refusal of the patients to work, a general meeting may be called in place of one of the above groups. Similarly, the patients themselves may ask for a general meeting when they are up against some particular problem as a community.

No individual psychotherapy is given in this unit. Requests for individual interviews are rare, but do occur from time to time. When a patient asks to see a doctor individually, this request is always granted, but the interview is devoted entirely to enquiring as to why the matter in question cannot be raised in the group meetings. In nearly all such cases the patient agrees to take the problem back to the group.

Reference has been made to a minimum of rules. Although the main aim of the experiment is to set up a self-governing community as far as possible, since the unit is part of the mental hospital as a whole, new rulings on some particular point, e.g. leave-passes, may at any time be introduced by the

Medical Superintendent and made applicable to the unit. Our policy for such contingencies has been to present the new rule to a full meeting of the community as from the Superintendent, encourage full discussion, and point out in detail the reason for the rule in the context of the hospital as a whole.

Free evenings can be spent as the patients wish, and they are actively encouraged to use the facilities of the mental hospital. They may attend the cinema, patients' dances, etc., held in the main building. This is done deliberately to lessen the inevitable feeling that they are different from, or more or less privileged than, the other patients, and such feelings are actively encouraged into the open in the groups for discussion.

When a patient leaves at the end of two months, he is offered a place in an out-patient treatment group composed of previously discharged patients from the unit. Following the group meeting the patients are encouraged to attend the social club to which they were introduced when in hospital.

Discussion

The unit has now been open for eleven months and it is possible to discuss some of our observations, although it is fully appreciated that a much longer period of time must elapse before any firm conclusions can be drawn or any reliable statistical data obtained. The number of patients who have received treatment in the unit for a full period of two months during that time is 71. Of these, 36 were men and 35 women.

Perhaps the most striking feature has been the degree of insight achieved, and the speed with which this has been accomplished. Two of us have had very considerable experience of individual psychotherapy and we are fully satisfied that patients achieve a degree of insight during their stay in the unit which we have rarely seen in less than six months in individual therapy as available within the mental hospital. We further realize the need to distinguish between intellectual insight and real emotional reorientation. Under the conditions of the unit, it is relatively easy to observe genuine changes in attitude and behaviour, and we are satisfied that the insight achieved has not been on the intellectual plane. Further confirmation of this change is often obtained from relatives, who are encouraged to attend the out-patient social club.

In considering the reasons for this rapid gain in insight, we feel that a number of factors contribute. The general community feeling created by the circumstances under which the patients live, and by the constant encouragement given by the staff to enable them to express their feelings in relation to one another, and to the doctors and nursing staff, plays a very important part. It has been striking to observe how readily the community seems able to accept and sympathize with "bad feeling"—e.g. hostility, sexuality, etc. Expression of such feeling in group meetings, and in the everyday life of the unit, is usually met by an eager willingness on the part of the community to discuss and help, seldom by condemnation. It is the policy of the staff actively to encourage all such feeling into the open for discussion. Another aspect of this community feeling is demonstrated by the remarkable degree of self-revelation which patients are prepared to offer when reading their life story to a full group. It is common for sexual problems of an intimate nature, e.g. difficulties in intercourse with a partner, to be revealed publicly after only four weeks' treatment. These life-stories are frequently read with great emotion, another evidence of the readiness to trust the community with aspects of personal life felt as "bad". The community seems to develop its own code of honour very rapidly and it has been remarked how common rumours and scandal are in the hospital as a whole, but how seldom anything of a personal nature leaks out from the unit.

Our experience in this unit suggests that we have not realized sufficiently in the past how much patients can do towards treating each other under suitable conditions. In this community they spend much of their spare time discussing in further detail aspects of their problems which have come to light in previous group meetings. Twice weekly the patients hold their own group meeting, without any staff being present, and this has proved a powerful stimulus to the production of material in the groups attended by the doctors.

Another factor playing its part in the rapid gain of insight is the limit placed upon the time spent in hospital. Every patient understands clearly that he will be discharged in two months, and that re-admission to the unit is not allowed. If a patient needs further treatment in hospital he must be re-admitted to the main block of the hospital. As a result of this, patients develop a sense of urgency and work much harder at their problems than is usual in the main body of the mental hospital.

The last factor is the large extent to which the patients help each other, with a corresponding lack of intense, dependent transference situations with the doctors. It would appear that they obtain so much support from the group as a whole that they do not need to develop such intense relationships with the medical staff. As a result of this we have found it possible to establish a relationship between doctor and patient of frank mutual criticism leading to insight into projected images of the doctor very rapidly. These are then quickly applied to other relationships. Discussion of the doctor's role and expression of phantasies regarding him is actively encouraged from the beginning of treatment.

We have spoken of the necessity of combining self-government with a degree of authority, due to the problem of being an integral part of the mental hospital as a whole. We have found it possible to use this to therapeutic ends. On the whole the community accepts authority, and works through its hostility rapidly, provided that the full reasons for the introduction of rules are given and freely discussed. Their initial difficulty in accepting such authority is then related to similar problems that many of them have outside the hospital, e.g. with employers. The arbitrary introduction of authority is always resented and rejected.

Part of the object of this experiment was to find some answer to the problem of economizing doctors' time and of avoiding the possibility of patients becoming "lost" and rapidly institutionalized. In the unit a total of 9 single doctor-hours per week is devoted to treatment over a period of two months for twenty patients. In terms of individual treatment this would mean a little less than half an hour per week for each patient. Each individual doctor gives three hours of his time each week to the unit. This is the equivalent of one hour per week to three patients. Since three doctors are employed in the unit, a total of 9 patients could be given one hour per week under the individual system. We are convinced that with this amount of individual treatment for two months, relatively little could be achieved as compared with the results so far obtained in this unit.

All of us have held therapeutic groups once per week for patients in the mental hospital but have found that the community background tends to work against successful treatment due to the institutionalizing factors referred to in the introduction to this paper. Within the unit every detail of the community life is under constant scrutiny to enable it to work with the group therapy.

An important aspect of this experiment is to examine the role of doctor and nurse in a therapeutic community. It is hoped to make this the subject of a further paper. All that can be said here is that our experience amply confirms that where the role of the staff is authoritarian, based upon a relationship of submission to rule and the suppression or punishment of "bad" feeling, a truly therapeutic relationship is impossible. Another subject for further study is the effect of such an experiment upon the hospital as a whole. One of the striking features in this case has been the flow of phantasies and rumours of a derogatory nature which has issued from the main body of the hospital. These rumours have been mainly concerned with sexual topics and work. It is felt that the chief reason for derogatory rumours is that the unit is an implicit threat to those whose security rests mainly upon the traditional authoritarian system of the mental hospital.

It was stated early in this paper that one of our aims was to contribute to the mental hospital as a whole some of our experience in the unit. Some progress has been made in the villa which houses the early treatable patients of all diagnostic categories. The problem in this ward is different in many respects, one of which is that it has accommodation for 50 patients. In this ward staff and patients now meet twice a week for one hour for open discussion, and the patients have been divided into six groups, each group being responsible for the domestic work of the ward on one day each week. This work was formerly done by a few chronic patients. The most striking result of this attempt to apply our experience to the mental hospital has been the change in atmosphere within this ward. There is a great reduction in requests to see the doctor for minor complaints, and the nurses report a greater degree of co-operation from the patients.

Lastly, we feel that such a unit as we have described has a real contribution to make to the training of nurses. By spending a period of three to six months in such a unit, the nurse has the opportunity to understand better her true role in relation to both patients and doctors, and she may acquire a greater capacity for acceptance of "bad" feeling from her patients, and learn the value of replacing a relationship based upon authority and submission by one based on acceptance and understanding.

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RELATIONSHIP BETWEEN DEAFNESS AND PSYCHOTIC ILLNESS

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As Bleuler (1925) pointed out, all our relationships with our human environment are regulated through language. For this, auditory perception is essential, this can only take place if the peripheral auditory mechanism (viz., the tympanic membrane, ossicles, spiral ganglion of Corti and *VIII*th nerve) is not diseased. When a person becomes deaf through disease of any of the latter, it does not matter which one of the peripheral mechanisms is involved, the result is always the same. Often not knowing what his fellow men are saying he becomes doubtful about them: losing auditory contact with them he has to rely on an inner world of auditory memories and images; he misinterprets auditory sense impressions which have been distorted by disease, and incorporates tinnitus caused by such disease into his world of inner phantasy. He projects his inner feelings of inferiority caused by his deafness on to his environment and develops ideas of reference. Systematization soon follows, with active delusions of persecution. If the personality is sufficiently unstable a psychotic illness results.

I have endeavoured to show the existence of a higher proportion of paranoid patients (i.e., having delusions of persecution) among deaf psychotics than non-deaf psychotics, in order to verify this hypothesis.

The investigation was carried out in a mental hospital containing 1,100 patients. I investigated those patients in the hospital reported as being deaf, testing their hearing by means of the spoken word, a watch, tuning fork, and in those cases which appeared by all tests to be stone deaf, dropping a bunch of keys heavily on the floor behind their backs to exclude hysterical deafness. I used written messages to communicate with them. I also examined them with the auriscope. Audiometry was not practicable, for many were too paranoid and unco-operative.

A number of supposedly deaf patients turned out to be schizophrenics who were withdrawn and were able to answer questions spoken to them after gaining their confidence. Some schizophrenics denied vehemently being deaf, though they obviously were, as one of them put it "Why, doctor I can hear the spirit of Billy Brooks (a fictitious person) tormenting me"—in other words his inner world of auditory phantasy was the only reality to him.

The method of investigation was as follows:

This deaf group was compared with a control group of non-deaf psychotics, selected at random, and matched for age and sex. Owing to the fact that the eldest deaf female aged 94 was the only one of her age in the hospital, and nobody was found to match her, she was excluded. As she was paranoid, it could not be said that her exclusion prejudiced the results in favour of the theory I have expounded. One male aged 74 who could not be matched was also excluded: he too was paranoid.

The results of this comparison are as follows:

Total Deaf=40 comprising 25 females and 15 males.

TABLE I

Diagnosis	Senile Dementia	Depression	Hysteria	G.P.I.	Paranoid Schiz.	Non-paranoid Schiz.
Deaf ..	0	3	1	1	17	15
Controls ..	2	1	0	5	8	17

Diagnosis	Epilepsy	Chronic Mania	Cerebral Arteriosclerosis	Mental Defect
Deaf ..	1	0	0	1
Controls ..	3	2	2	0

Ideally, the experimental and control groups should be matched, subject for subject, on all other variables which could conceivably be related to both deafness and paranoid symptoms. In this experiment, for practical reasons, the groups were matched for age and sex only: the former being so obviously related to deafness and, to a significant though lesser extent, to paranoid symptoms that failure to control this factor would have rendered the results invalid for our purpose. It is possible that there are other effective variables, and it is hoped to design and carry out a more ambitious experiment as a follow-up to this initial pilot experiment to determine whether and to what extent other variables are effective.

For each member of the experimental group, a subject of identical age and sex was selected at random from the remainder of the hospital population, using the initial letter of each subject's surname as a basis for random selection.

ANALYSIS OF THE RESULTS

For the purpose of testing our hypothesis, it is necessary only to dichotomize these clinical groups into "paranoid" and "non-paranoid" cases. The figures are then as shown in Table II.

TABLE II

Distribution of paranoid symptoms and deafness in 80 patients

Group 1 (experimental group —40 deaf subjects)		Group 2 (matched control group —40 non-deaf subjects)	
Not-paranoid	Paranoid	Not-paranoid	Paranoid
23	17	32	8

A significant difference between the proportion of paranoids in group 1 and that in group 2 would support the hypothesis already advanced that deafness and paranoid symptoms are related. If the difference is not significant we can reasonably reject this hypothesis. But, if the proportion of paranoids in the non-deaf exceeds by a significant amount the proportion in the deaf, we must also reject our hypothesis. Thus our hypothesis requires that the proportion of paranoids in the deaf group shall *exceed* the proportion in the non-deaf group by a significant amount. Consequently, a *one-tailed* test of significance is required.

Significance was tested against a null hypothesis by calculating the exact probability of 17 or more paranoid cases falling in the deaf group if both groups are drawn from a common population of paranoid cases. Fisher's exact treatment of 2×2 tables was used (Fisher, 1925) i.e., the probability of occurrence is the sum of the probabilities of 17, 18, 19, 20, 21, 22, 23, 24, or 25 of the 25 paranoid cases falling in the experimental group.

The value of P is 0·026, which is significant at the ·05 level of confidence and consequently we can reject the null hypothesis and accept, with a fairly high degree of confidence, our hypothesis that deafness and paranoid symptoms are related. The actual degree of correlation was also estimated using the measure of tetrachoric correlation (e.g., Garrett, 1947) although, since this measure requires both variables to be continuous and normally distributed, this result should be interpreted with caution. The value of r_{tet} is ·40 with SE of ·14 (approx.) and a Critical Ratio of 2·86 which is significant at the ·01 level of confidence.

Thus, despite the practical experimental difficulties which restricted the population from which the subjects were drawn, and despite the difficulties of matching groups, it seems reasonable to suggest that the data demonstrate a moderate but significant correlation between deafness and paranoid symptoms —at least among populations similar to the one from which our subjects were drawn—as required by our hypothesis. It is not possible, of course, to infer directly from the data that deafness is a contributory causal factor of paranoid symptoms, but the results do not preclude this possibility and they indicate the importance and necessity for further research in this field.

DISCUSSION

Not only is there a significantly higher number of paranoid patients in the deaf group, but there is less deterioration and disintegration of personality in them than amongst the controls, i.e., they are clean in their habits, neat and tidy and would pass for normal in the wards of a general hospital at a glance. (This is not a feature which can be analysed statistically however, because there are so many fine variations and differences in behaviour.)

A typical case history of a deaf paranoid schizophrenic aged 60 certified and admitted in 1941 goes as follows: "Mother says: Always imagined people were talking about her since adolescence. Attempted suicide 1939. Denies she is deaf, but obviously very deaf." On certification "She is not coherent in her statements and is evasive in her replies: has delusions that sounds and voices are travelling up a water pipe. She says people are jealous, and coming to take her rations." Latest note: "Believes she is a prisoner here, and that there is a plot against her. She is suspicious of her food and of all visitors who come to the hospital. She hears voices and laughs to herself in response to them." She is neat, tidy, has grounds parole and is in a convalescent villa: shows no sign of deterioration, is co-operative, and well behaved, not mixing much with other patients.

There is only one congenital deaf-mute amongst the group (as apart from 3 cases of deafness from an early age). This patient shows amentia, and requires to be washed and dressed. She is always incontinent and pays no attention to her toilet, cannot be trained to use a spoon, steals food from other patients at meal times and eats paper, earth or grass. Those with deafness from an early age (2 due to meningitis at the ages of 4 and 5 and one due to diphtheria at the age of 9) do not differ from the other cases in level of intelligence. But a separate investigation into relationship between deafness and intelligence would be necessary to go into this further.

The fact that most of the deaf paranoid schizophrenics have less disintegrated personalities suggests that there is less genetic constitutional loading in them, for Kallmann in his large investigation into schizophrenic twins discovered that in them environmental differences generally exerted no large influence. Thus, where an exogenous factor, like deafness, provokes a schizophrenic breakdown, deterioration is less likely to occur, though inherited factors must also play some part (Henderson and Gillespie, 1950). Exogenous factors are certainly held to be more favourable in prognosis (Henderson and Gillespie, *ibidem*).

In ordinary people attention to environment subjectively determined in accordance with preconceived emotional drives; images too are subjectively determined, and a hallucination which is only an image of marked vividness and intensity is regarded as a sensation by a hallucinated individual (Knight, 1952). Illusions when in a state of expectancy are common to all of us (Woodworth and Marquis, 1952) so how much more difficult it is for a deaf person to correct his illusions, especially if they are determined by tinnitus, as is aptly illustrated by the following case: He is a voluntary patient aged 57, has a bilateral mixed type of deafness resulting from diphtheria at the age of 9. Auriscopy shows retraction of the drum with scarring on the right side, and an old perforation on the left side. He is very depressed by banging noises in his head and voices. Doesn't know whose voices they are nor whence they come. He feels inferior because he's deaf and people can't understand him. Hears a tapping noise and insane laughter, ship sirens and thought telepathy. Somebody is putting their thoughts into his head and trying to drag him down into the mud. "It's someone with a big brain."

SUMMARY

A hypothesis of the effect of deafness on the personality is propounded. A group of deaf psychotics is compared with non-deaf psychotics matched for sex and age. It is shown statistically that there is a significantly higher proportion of paranoid schizophrenics among the deaf than among the non-deaf psychotics. The deaf psychotics were found to be less deteriorated than the non-deaf and an explanation suggested as being due to the fact that exogenous factors are associated with less genetic constitutional loading.

ACKNOWLEDGMENTS

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THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION'S MEMORANDUM OF EVIDENCE TO THE ROYAL COMMISSION ON THE LAW RELATING TO MENTAL ILLNESS AND MENTAL DEFICIENCY*

PREAMBLE

1. The Council of the Royal Medico-Psychological Association wishes to thank the Royal Commission for inviting it to submit a memorandum of its views on the matters which the Commission is considering.

2. The Association now has over 1,300 members, representing every branch of psychiatric practice. Its work is organized in geographical Divisions, of which there are three in England and Wales, besides a Scottish and an Irish Division. For other purposes, the members are grouped in scientific Sections, for Clinical Psychiatry, Social Psychiatry and Psychotherapy, Child Psychiatry and Mental Deficiency respectively. The Association is governed by a Council consisting of the Officers, Representatives of the Divisions and Sections and additional nominated members, reflecting all aspects of the Association's work.

3. During the last few years the Association has given attention to the need for revised legislation in regard to both mental disorder and mental deficiency. In 1949 a sub-committee examined and reported on the provisions of the Northern Ireland Mental Health Act; in 1951, tentative proposals regarding mental deficiency were drawn up, and in 1953 similar work was done in regard to mental disorder and the psychopathic states.

4. The present memorandum of evidence has been prepared by a special committee of the Association, constituted as follows:

> N. G. Harris, M.D., F.R.C.P., D.P.M., Physician for Psychological Medicine to the Middlesex Hospital; President-Elect of the Association (to be inducted on 14 July, 1954). (CHAIRMAN.)
>
> Alexander Walk, M.D., D.P.M., Physician Superintendent, Cane Hill Hospital, Coulsdon, Surrey; Hon. Librarian to the Association; Co-Editor of the *Journal of Mental Science*. (SECRETARY.)
>
> M. J. Brookes, M.R.C.S., L.R.C.P., D.P.M., Medical Superintendent, Shelton Hospital, Shrewsbury; Secretary of the Parliamentary Committee of the Association.
>
> N. H. M. Burke, O.B.E., M.R.C.S., L.R.C.P., D.P.M., D.M.R.E., late Medical Superintendent, Cell Barnes Hospital, St. Albans; Chairman of the Education Committee and of the Mental Deficiency Section of the Association.
>
> J. S. Ian Skottowe, M.D., M.R.C.P., D.P.M., Psychiatrist, The Warneford and Park Hospitals, Oxford; late Physician Superintendent, St. John's Hospital, Aylesbury; Chairman of the Parliamentary Committee of the Association.
>
> G. M. Woddis, M.R.C.S., L.R.C.P., D.P.M., Medical Superintendent, The Coppice, Nottingham; Secretary of the Northern and Midland Division of the Association.

5. The reports of the previous sub-committees mentioned above were taken as a basis, and summaries were circulated to all members resident in England and Wales, while at the same time comments and suggestions were invited. The replies received were scrutinized and all suggestions were given full consideration. In regard to Mental Deficiency, this work was done by the Executive Committee of the Mental Deficiency Section. The draft memorandum was finally considered and approved by a special meeting of the Council of the Association.

6. The Council is confident that the views expressed here command general support and represent the most complete agreement attainable among the members of the Association.

7. Having thus set out the procedure by which the Association's evidence has been compiled, it is proposed, for the sake of convenience, to use the first person in the remainder of this memorandum.

GENERAL PRINCIPLES

8. When, in 1925, our predecessors in the Association gave their evidence before the Royal Commission presided over by the late Lord Macmillan, their leading proposals were designed to secure the provision of facilities for out-patient treatment and for the in-patient treatment of a considerable proportion of cases on a voluntary basis, both in mental hospitals and in special clinics to be established in connection with medical schools and general hospitals; further, they recommended that a provisional order should be instituted as an intermediary measure before resort to certification; and that the procedure for mental disorder should be dissociated from the Poor Law.

9. In general, the Report of the Commission, published in 1926, was in agreement with these principles, and the Report was welcomed by the Association as one in which "a broad

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* Approved by the Council at a Special Meeting on 23 June, 1954 and (with amendments) by the Annual General Meeting on 14 July, 1954.

vision and high ideals were blended with common sense and practicability". The Mental Treatment Act of 1930 gave partial effect to the Report's recommendations, and has been the foundation for all subsequent progress, but it has always been a matter for regret that it was not possible to introduce comprehensive legislation; so that, for certified patients, procedure is still governed largely by the Act of 1890, and a number of defects in this Act, which were pointed out in the previous Commission's Report, remain unremedied.

10. Legislative changes not directly concerned with mental treatment, particularly the Local Government Act of 1929 and the National Health Service Act of 1946, have enabled great progress to be made in the provision of psychiatric services. Out-patient centres are widely distributed; a psychiatric consultant service is available to most general hospitals and for other purposes; within the mental hospitals, where a large proportion of patients are voluntary, a liberal regime with a minimum of restrictions prevails. Classification of patients has in many instances been greatly improved by the provision of special admission and convalescent units, and the introduction of new methods of treatment has led to greater therapeutic activity everywhere. A great expansion of social work and after-care has been made possible by the development of the new profession of psychiatric social worker. The most striking advance is seen, perhaps, in areas where the mental hospital has become a centre from which a comprehensive psychiatric service is provided, and which enjoys the esteem and confidence of the public. A number of in-patient psychiatric units exist, mainly in the teaching hospitals, and a few well-staffed University departments of psychiatry, including the Institute of Psychiatry in London, have been established. On the other hand the mental hospitals have had to contend with the prevailing financial stringency and with a very serious shortage of nursing staff, with consequent overcrowding and a threat of a lowering of standards. Apart from this, there is insufficient provision, except in London, for the in-patient treatment of cases of neurosis and of children suffering from mental and nervous disorders of all kinds.

11. In the field of Mental Deficiency there was, between the wars, a large increase in the number of institutions and an expansion of Local Authority services, in accordance with the Mental Deficiency Acts of 1913 and 1927. Even in 1939, however, some counties had failed to provide any accommodation for defectives. The National Health Service Act of 1946 has enabled all parts of the country to share in the resources available. It is well known, however, that the number of beds provided falls far short of the demand. Within the institutions advances in general medicine have resulted in better care for the lower-grade patients, while the training and resettlement of the higher grades has been successfully pursued and has been favoured by present conditions of full employment. In this field, as in that of mental disorders, modern psychiatric thought lays stress on treatment aiming at the patient's return to the community.

12. New legislation should establish the principle of voluntary and temporary treatment for both mental disorder and mental deficiency, reserving the judicial order for as few cases as possible. But because of the more indefinite limits of mental deficiency and the doubt and misunderstanding which exist among the public concerning its nature and treatment, we think that in this field additional safeguards should be provided.

13. We believe that both for mental disorder and for mental deficiency mere amendment and consolidation would not adequately meet present needs, and we recommend that a new comprehensive Mental Health Act, covering the whole psychiatric field, should take the place of existing legislation. We give our recommendations for mental disorder and mental deficiency separately as Parts 1 and 2 of this memorandum.

14. Much attention has recently been given to the problems presented by persons suffering from forms of mental abnormality, not generally recognized as either certifiable mental disorder or as mental deficiency, but which nevertheless affect behaviour so as to render them delinquent or otherwise anti-social. Such persons are now commonly known as "psychopaths". Where the condition is severe, some measure of control is required for the protection of others, and all possible treatment should be given. We have included proposals for dealing with this type of patient in Part 3.

15. Much thought has also been given to the special problems of mental decay and other forms of mental disorder occurring in old age. We have discussed this subject in Part 1, as in general we believe that these problems can be solved by suitable arrangements within the framework of the general and mental health services, rather than by special legislation.

16. Throughout we have tried to simplify the present law, and to frame proposals which are practicable in present circumstances and which we hope will be acceptable to public opinion. We believe that any future legislation should be flexible enough to meet the needs of a great variety of individual sufferers, and to encourage a right therapeutic relationship between them and those who minister to their care and treatment.

PART 1

MENTAL DISORDER

TREATMENT IN THE COMMUNITY

17. The organization of psychiatric out-patient clinics is the responsibility of Regional Hospital Boards, and such clinics now exist at a large number of centres. There are still many districts, however, where the distance from the nearest clinic is too great for its use

except as a diagnostic centre. The limitation of medical staffs and of psychiatric social workers makes further expansion difficult at present. This applies also to domiciliary services; where these have been effectively developed the demands for admission to hospital have been considerably reduced.

18. Recently new forms of community care have been provided in the form of therapeutic social clubs; and in a few places there are day hospitals, where various forms of treatment can be given without the need for admission as an in-patient.

19. Local Health Authorities are responsible for taking measures for the prevention of mental illness, for the care of patients otherwise than in hospital, and for their after-care on discharge from hospital. Clearly, however, the medical and social services provided from the hospital must be an integral part of such care and after-care. In the case of patients leaving hospital it is most undesirable that there should be any break in the continuity of treatment and support during the period of readjustment to normal life. Close co-operation between the local authority and the hospitals is therefore essential in the patients' best interests. The degree to which this now exists varies very greatly in different areas; we refer to this matter again under the heading of "Mental Welfare Officers". We recommend that the principle of co-ordination should be expressly recognized in future legislation, and that the authorities concerned should be encouraged to pool the staffs needed for the purpose, by way of joint appointments or secondment.

20. The work of the Mental After-Care Association should be supported, so that its activities can be extended to parts of the country where it cannot operate at present, and similar work should be undertaken directly by Local Authorities. There is a need for the establishment, in large centres of population, of hostels for patients capable of normal self-supporting occupation, but who have no families and for whom ordinary lodgings are unsuitable.

In-Patient Treatment Outside the Mental Treatment Acts

21. Treatment outside the Mental Treatment Acts is provided at a number of special units which are part of or connected with general hospitals, and in certain other special hospitals. Such are, for instance, the psychiatric unit of St. Thomas's Hospital; Woodside Hospital, which is part of the Middlesex Hospital group; Belmont Hospital; the Cassel Hospital, and the Park Hospital at Oxford. These deal entirely with cases of neurosis or of early or mild psychotic disorder; they are not subject to inspection by the Board of Control, and admission is without any kind of formality.

22. We regard the establishment of these special units and hospitals as a welcome development, which we should like to see extended, especially at University centres. In present circumstances, however, some caution is needed to ensure that such special units do not absorb an undue proportion of available resources in money and in medical and nursing man-power, to the detriment of the mental hospitals where the bulk of psychiatric in-patient work must continue to be carried out.

In-Patient Treatment Under the Mental Treatment Acts

Admission of Patients

A. Voluntary Patients

23. The admission of patients to mental hospitals on a voluntary basis has been an unqualified success, and the majority—in some hospitals, the great majority—of patients are now admitted in this way.

24. In the last few years it has been suggested that the necessity for making a written application, and the requirement that 72 hours' notice of departure should be given, act as deterrents to admission, and, experimentally, arrangements have been made for the admission of a certain number of "informal" patients. This has been done by declaring some detached part or unit to be a separate hospital outside the Mental Treatment Acts.

25. This scheme appears to be logical and unexceptionable when the building so used is genuinely separate from the main hospital and was designed and provided for the reception of cases of the type envisaged. It may, however, be detrimental if the building is one which was meant to be an integral part of the hospital, e.g. an admission unit equipped with facilities which were meant to be shared by the whole hospital. It appears, moreover, that in such cases legal subterfuges have been used, e.g. granting patients in the main hospital leave "on trial" to enable them to go to the "informal" division for special treatment. To overcome these drawbacks, it has been suggested that the law should allow of "informal" patients being admitted to any part of the mental hospital; or alternatively, that all voluntary admissions should be without formality.

26. We have come to the conclusion that it would be invidious for there to be two categories of voluntary patients within the hospital. In general, we favour the abolition of all formalities for the admission of adult voluntary patients; we recognize, however, that this possibility depends on whether discharge formalities can also be dispensed with. Undoubtedly, the deterrent effects of the need for a written application have been increased by the use of over-elaborate and clumsily worded forms, and therefore, we would strongly advise that if the present requirements are retained any form used should be of the simplest kind, containing only the barest words indicating the patient's wish to enter the hospital. Patients under the age of 16 should continue to be admitted as at present.

27. We believe that no useful purpose is served by sending notifications of adult admissions to the Board of Control, and we recommend that this requirement should be abolished.

27a. We recommend also that the reference in Section 1 of the 1930 Act to the admission being "for mental illness", should be deleted, so as to remove any doubt as to the propriety of admitting cases not generally labelled "mental", e.g. cases of neurosis or psychopathy, of organic brain disease or of bodily illness thought to be of psychological origin.

28. Section 1 of the Mental Treatment Act lays down that a voluntary patient shall give 72 hours' notice of his intention to leave. It has, however, been held that in fact there is no legal sanction for detaining the patient during this time. We have considered whether it would be better to dispense altogether with this requirement. The experience of hospitals and units working outside the Acts seems to show that it is possible to deal with emergencies even in the absence of any statutory period of notice. If the mental hospital is designated for emergency admissions under the procedure proposed in a later section, it should be easy to deal speedily with cases where it would be unsafe for the patient to be at large. On the other hand, there are many cases where emergency action would hardly be justified, but where delay is desirable in order that the relatives may be sent for, or merely to enable the patient to change his mind. Total abolition of the statutory notice would certainly help to remove any feelings of constraint in the minds of voluntary patients, and on the whole we would prefer that the patient's discharge, like his admission, should be free from formality. If the statutory notice is retained, we think the period should continue to be 72 hours; but it should be clearly stated that a patient who expresses and maintains his intention to leave should be discharged within a specified time even if he does not give written notice.

29. On the other hand, we should like to see a reconsideration of Section 2 (3) of the Mental Treatment Act, which forbids the retention as a voluntary patient of one who becomes incapable of expressing himself as willing or unwilling to receive treatment. We have in mind especially the numerous patients who in the course of their stay in the mental hospital are overtaken by senility or by deterioration due to organic disease, so that their last months or years are spent in a state of mental decay. In such cases, to insist on a change of status is to inflict hardship on the patient and his family, and we think that the doctrine of the "continuing will" ought to be applied. A safeguard might be introduced here by laying down that where the patient is incapable of expressing himself, a relative should have the power to discharge him in the same way as for patients detained under order.

B. Temporary Patients

30. At the time of the previous Royal Commission, various proposals were put forward by this Association and other bodies for the institution of some kind of provisional order, and it was generally agreed that the full procedure of certification should be used only in the last resort. The Commission eventually recommended a provisional order not specially linked to the patient's mental state as regards volition. "Not without reluctance" they recommended that this order should be a judicial one. The Mental Treatment Act of 1930 however, made provision for temporary treatment on different lines; Section 5 of the Act was made to apply to "non-volitional" cases only, and the intervention of a magistrate was dispensed with.

31. It is well known that Section 5 has not been used to the extent that was hoped, partly because of its limited application, but mainly because there was no obligation to use it, the cases to which it was meant to apply remaining certifiable under the Lunacy Act; consequently, certification has been preferred in many areas as the simpler and cheaper procedure.

32. However, the twenty-three years' experience of the working of Section 5 has shown that admission to mental hospitals without judicial intervention is both practicable and acceptable to public opinion. A further indication pointing in the same direction is the designation, under the National Health Service Act, of mental hospitals as places of observation to which patients can be removed under Section 20 of the Lunacy Act. Neither provision has given rise to criticism or to complaints of improper detention.

33. On the other hand, there is ample evidence that judicial intervention is no real safeguard against undesirable and unnecessary certification. The Report of the last Royal Commission (Paragraph 93) deprecated the certification of physically ill people suffering from temporary delirium, and of old people in a neglected condition. Undoubtedly such certifications still continue.

34. We believe that the time has come to extend to all patients admitted to mental hospitals the benefit of conditions similar to those of Section 5, irrespective of their volitional state or of their supposed recoverability. We recommend that this should be the normal method of admission for patients other than voluntary ones and apart from the emergency procedure mentioned later.

35. The application should be made, as now, by a relative, or by the Mental Welfare Officer of the local authority, and there should be two medical recommendations, one given, if possible, by the patient's usual medical attendant, and the other by a specially approved practitioner.

36. Approval for this purpose should be given only to practitioners who possess special qualifications in psychiatry, or have at least had psychiatric experience. In the case of a patient to be admitted to a public mental hospital it should be permissible for the second recommendation to be given by a medical officer of the hospital itself. In many instances, in fact, this is highly desirable. Personal contact of this kind leads, wherever it is already

practised, to a more judicious selection of cases and the diversion of many to voluntary admission or to out-patient or domiciliary treatment. In areas where recommendations are made by medical officers of observation units in general hospitals, they should work in close touch with the mental hospital to secure the same result.

37. In order to ensure that the highest possible number of recoverable cases should receive the whole of their treatment under this section, we recommend that the period of detention should be up to one year in the first instance, and that in cases where recovery is expected this period should be extendable by two further periods of six months on the authority of the Board of Control. In view of the right now possessed by the appropriate relatives to order a patient's discharge at any time, it seems unnecessary for the application for extension to be made by them or by a Mental Welfare Officer, and we propose that it should be made by the Medical Superintendent after notice to the appropriate relative.

38. Since "temporary" admission would, under our proposals be the rule and no longer the exception, we do not think that the special provision under Section 5 (9) and (10) of the Mental Treatment Act, for visitation and examination by two members of the Hospital Management Committee is necessary or desirable.

39. We have considered whether any additional safeguards ought to be provided to compensate for the abolition of the magistrate's order for all initial admissions. In our view, the patient's greatest safeguard lies in the integrity and skill of the medical and ancillary professions. We have moreover proposed the substitution of two medical recommendations for the present single certificate. A further safeguard now exists in the relatives' power of discharge. Nevertheless we think it reasonable that an unwilling patient should have better opportunities of stating his objections and it may be of securing a reconsideration of his case.

40. We propose, therefore, in the first place that the Board of Control should be strengthened so as to make possible a personal visitation of any case in which they may feel doubts as to the propriety of the patient's detention, or where letters received from the patient appear to show a reasonable cause for enquiry.

41. Secondly, we propose that all patients admitted under this section should be given the right of an interview with a magistrate unconnected with the management of the hospital. The patient should be informed of this right, and of his rights of correspondence, by means of a printed statement; this, however, should not have the appearance of a formal document, but should be incorporated in a leaflet or brochure giving general information about the hospital. After interviewing the patient, the magistrate would either endorse the application form, or else make a recommendation for discharge to the Hospital Management Committee.

C. Patients Under Judicial Order

42. As already stated, we recommend that the Judicial Reception Order should be used only for those who can no longer be retained as Temporary Patients, either at the end of 12 months or during the second year, where recovery seems unlikely; or at the end of two years in any case where further detention is necessary. It should, therefore, be permissible to apply for an order from a convenient date a short time before the expiry of the first year —say a fortnight—or at any subsequent time up to the end of the two years.

43. We propose that the order should be made by a specially appointed magistrate unconnected with the management of the hospital on the application of a relative, or of a Mental Welfare Officer after giving notice to the appropriate relative. There should be two medical recommendations, of which one should be by a practitioner specially approved (as in the previous section); in the case of a public mental hospital, he should preferably be one of the hospital staff.

44. We think that the opportunity should be taken to make changes in the terminology used, which we believe would go far towards removing the so-called "stigma" attached to the Judicial Order. This is largely bound up with the use of the words "certification" and "certified patient", which to many of the public suggest, however wrongly, the irrecoverability of the patient and his permanent incarceration. The term "person of unsound mind" is also objectionable, as being an epithet rather than a diagnosis. If the term is still needed for other legal purposes, e.g. in connection with civil incapacity, it should be defined in a separate clause of the Act as applying to one or more of the categories of patients recognized here. We suggest that the medical recommendation should state merely that the patient is suffering from mental illness, and that it is necessary for his welfare that he should remain under care and treatment; and the clinical reasons for this conclusion should be stated. To designate the patient's status, the word "certified" should be replaced by some innocuous term, such as "Reception Order Patient".

45. We recommend that Judicial Reception Orders, as at present, should expire at the end of a year, and should be renewable by means of special reports and certificates sent to the Board of Control. As the patient will already have been in hospital for at least a year before the order is made, the prescribed intervals might be altered so that the report would be required at the end of the first, third, fifth, seventh and tenth year after the making of the order, and thereafter at five-yearly intervals. The wording of the certificate should be altered to correspond with the new terminology of the order; and as the patient may be on leave at the time the report is made, we suggest that the certificate should be worded as follows: "that the patient is still suffering from mental illness and is not yet fit to be discharged from his present status". In order to assist the scrutinizing Com-

missioner, we suggest that the report, in addition to describing the patient's present condition, should give a brief account of his progress since the last report was sent.

D. EMERGENCY ADMISSIONS

46. Many cases arise in which it is necessary that the patient should be removed to hospital immediately. Under the existing law there are a number of different procedures for this. Some of these are little used, and the ones to be considered are principally the three-day order enabling a patient to be admitted for observation to a specially-designated hospital (Lunacy Act, Section 20, as amended in 1946) and the Urgency Order for the admission of a patient to a mental hospital (Section 11). Section 11 originally applied to private patients only, but since 1930 has been available to all patients. Section 20 originally applied to "pauper" patients, and the places to which they could be removed were the workhouses, later superseded by local authority hospitals. Since 1948, however, mental hospitals or parts of mental hospitals have also been designated under this Section. Apart from local difficulties, this has worked well, and we approve of the arrangement generally. There appears now to be no essential difference of purpose between the Section 11 and the Section 20 procedure, and we consider that there should be a single unified procedure for emergency admissions.

47. We recommend that the Mental Welfare Officer should have power to remove any patient in need of immediate care to a hospital designated for the purpose, either a general or a mental hospital. The order would cover three days, and would be extendable to twenty-one days on an order signed by the Medical Superintendent of the mental hospital or medical officer in charge of the observation unit.

48. We refer later to the position of Mental Welfare Officers, and to the arrangements which, on their own initiative, are being made for establishing a recognized course of training for entrants to this service. Assuming that such training will become general, we think that Mental Welfare Officers may properly be entrusted with these powers, and that there is no need to require that their action should be supported by a medical recommendation, although in many cases they will act on medical information.

49. We believe, however, that there are cases in which the patient's family are unwilling to call in an officer of the local authority, and would prefer to deal directly with the hospital. We recommend, therefore, that the same power to make a three-day order should be allowed to an appropriate relative or friend, who in this case should be supported by a medical recommendation, to be given by any medical practitioner.

50. We contemplate that in general all mental hospitals (including Registered Hospitals operating outside the National Health Service), would be designated, but there should be power to restrict the designation in particular cases at the request of the hospital, to meet, for instance, the needs of small hospitals or of those set aside for special categories of patients.

51. These provisions would make possible a limited period of observation under competent psychiatric care of patients in whose case a considered decision as to disposal cannot otherwise be reached. We summarize here some of the methods of disposal which are now available or would be made available under our proposals:

(1) Discharge home, as not in need of further treatment, or after successful emergency treatment. Referred, if necessary, to the patient's own medical attendant, or to an out-patient clinic, or to the after-care service of the local authority.
(2) Admission to a general hospital for treatment of bodily illness.
(3) Admission to a geriatric unit.
(4) Admission to a special neurosis hospital, or to a psychiatric unit of a general hospital.
(5) Admission to the mental hospital as a voluntary or temporary patient.
(6) Admission to a convalescent home.

We recommend that, where an observation unit is provided as part of a general hospital, its use should not necessarily be restricted to cases under order. It should be permissible to admit for observation without formality suitable patients who present themselves voluntarily, for instance patients who have made a previous recovery in the unit and who seek assistance there at the onset of a relapse.

E. PRIORITY

52. At present, certified admissions have absolute priority over voluntary admissions, since the magistrate's order is a direction and not merely an authority to receive. Consequently, under conditions of overcrowding, it has often been necessary for mental hospitals to close their doors to voluntary patients, sometimes for long periods, although in fact a number of these may have been more urgently in need of care than other patients sent under order. Further, patients have been unnecessarily certified in order to secure their admission. We recommend that in future all admissions should be put on an equal footing, the Medical Superintendent being given the same discretion to decide on priority as is now enjoyed by the admitting officers of general hospitals.

MENTAL WELFARE OFFICERS

53. The duties in connection with mental treatment formerly carried out by relieving officers were by the National Health Service Act, 1946, transferred to officers of the Local Authority. This was done by substituting the words "duly authorized officer" for "relieving officer" wherever they occurred in the Acts; but no precise instructions were given to local

authorities as to the appointment, qualifications and duties of these officers. Local authorities were left free to "authorize" officers belonging to any of the recognized professions, or specially recruited, and to require them to be engaged wholly in statutory duties under the Acts or to participate in other forms of mental health work.

54. There has since grown up a movement among the duly authorized officers and other mental health workers to organize themselves into a professional body under the name of "Mental Welfare Officers". This term has, therefore, been used throughout this memorandum.

The Association has recently conferred with the Society of Mental Welfare Officers with a view to establishing a national system of training for such officers, and it is intended to pursue the matter jointly with the Society of Medical Officers of Health.

55. The need for such a national scheme is apparent from the widely divergent views taken by local authorities of the functions of Mental Welfare Officers. In many areas there is close co-ordination between the local authority and the hospitals; here the Mental Welfare Officers co-operate with the medical staff of the mental hospitals and with their psychiatric social workers at out-patient clinics, in the patients' homes and at the hospitals as part of a comprehensive mental health service. Elsewhere, a much narrower view prevails; duly authorized officers are restricted to carrying out their statutory duties under the Acts and are largely out of touch with the services provided by the hospitals.

We are glad to know that the Society of Mental Welfare Officers endorses the wider conception of this work, and in framing our recommendations regarding the admission of patients we have assumed that this conception will prevail everywhere.

56. We suggest that practical recognition should be given to this principle of co-ordination by recognizing the mental welfare officer's right to obtain specialist advice, in conjunction where practicable with the patient's general practitioner; this would be done either by referring a patient to a suitable out-patient clinic, to which he should be conveyed if necessary, or by arranging for a domiciliary visit by a psychiatric specialist. Conversely, the Mental Welfare Officer should be required, when deciding on the action to be taken, to have regard to the opinion and advice which a psychiatric specialist may have given.

PROTECTION OF PERSONS EXERCISING DUTIES

57. The provisions of Section 16 of the Mental Treatment Act, 1930, have been generally effective in protecting medical practitioners and Mental Welfare Officers against unfounded litigation. Nevertheless, it would seem that the Section ought to be amended to include certain persons not now covered. Such are medical practitioners and psychiatric social workers who may give information to a Mental Welfare Officer upon which the latter takes action; or psychiatric specialists acting as consultants to observation units in general hospitals, who may give advice, but do not themselves write certificates or recommendations. Such persons might be held not to be doing "anything with a view to signing or carrying out an order etc.", or "anything in pursuance of the Acts". We therefore recommend that protection should be extended to all persons giving advice or information in a professional capacity in connection with procedure under the Acts.

DISCHARGE OF PATIENTS.

(a) VOLUNTARY PATIENTS

58. As already explained, we are recommending that a voluntary patient should be able to leave without having to give notice. If, however, the requirement that notice shall be given is retained, it should be made clear that this may be waived and the patient allowed to depart immediately, and on verbal request only, if the Medical Superintendent does not consider this detrimental. The Medical Superintendent should retain his present powers of discharging a patient on his own initiative.

59. We do not recommend any change in the procedure for the discharge of patients under 16 years of age.

60. If our proposal that a patient should be allowed to retain his voluntary status, notwithstanding his loss of volition, is adopted, then special provision should be made to give a power of discharge in such cases to the appropriate relative. This power should be exercised in the same way as in the case of temporary patients or patients under order.

(b) TEMPORARY AND RECEPTION ORDER PATIENTS

Discharge by the Hospital Authorities

61. Under the present law, discharge may be ordered by two members of the Hospital Management Committee on the advice of the Medical Superintendent. We do not think that this procedure accords well with the conception of the mental hospital as primarily a place of treatment and cure. Since, throughout his stay, it will have been emphasized to the patient that his detention is necessary to his welfare and will be terminated as soon as his state of health allows, it follows that the Medical Superintendent should be able to carry out this promise personally. Moreover, we think it undesirable that a patient should be required to appear before a lay committee whose members cannot be expected to know how best to discuss his case with him. We recommend therefore that the Medical Superintendent should have the power to discharge a patient of his own authority.

62. We think that the provision by which three members of the Committee may order

a patient's discharge without the Medical Superintendent's advice should be retained, as being an established safeguard which may be of value in special cases.

63. We do not think that there is need for any difference in procedure according to whether the patient has recovered or not.

Discharge by Order of Relatives

64. Previous to 1948 the power of ordering discharge was possessed by relatives of private patients only, but by the National Health Service Act this power was extended to the "appropriate relative" of every patient. On the whole the change has been found beneficial; it renders discharge procedure more flexible, and has made for increased confidence in the hospital on the part of the patients' families. In framing our proposals, we have assumed that the system will be continued. On the other hand the use of this power unwisely may result in premature discharge with consequent harm to the patient, and no protection is given to the patient against a relative who may be ill-disposed towards him or at least unable to give him proper care.

65. We have considered whether any such protection ought to be given, for instance, by extending the grounds on which a barring certificate can be issued, as has been done in Northern Ireland. The present barring certificate refers only to a patient who is "dangerous and unfit to be at large", and though this is generally interpreted as including a patient who is dangerous to himself by reason of suicidal tendencies, it would seem that the clause had regard more to risks to the public than to the patient's interests. We think that the wording here should be altered to provide for danger *to*, as well as danger *from* the patient, such as danger arising from neglect or cruelty, and we recommend that the Medical Superintendent should be able to issue a barring certificate, on the same terms as at present, if he can state that in his opinion "the patient's discharge will lead to danger to himself or others". The relative should have a right of appeal to the Hospital Management Committee, and from them to the Board of Control.

66. We think also that the definition of the "appropriate relative" needs revision. It would appear that at present, in the absence of a spouse or parent, an unreasonable wish to order discharge on the part of one of the relatives must prevail against the unanimous opinion of all the others. It seems also that the relatives' power of discharge will need to be limited in the case of patients received under Section 30 of the Magistrate's Courts Act, 1952, since its exercise might make the magistrate's order of no effect.

67. The present provision of Section 79 of the Lunacy Act, by which any relative or friend (apart from the "appropriate relative") may apply to the Committee for the patient's discharge, should be retained, the wording of the undertaking being altered to accord with changed conditions.

Discharge to the Care of the Local Authority

68. Previous to 1948 the Poor Law authority had a duty to remove and maintain any patient who on discharge from a mental hospital might otherwise have been homeless. There is now no such duty on the part of the Local Health Authority; the hospital can only notify with the object of enlisting the Authority's help. We think it wrong that any patient should be retained in hospital solely because there is nowhere for him to go, and we recommend that Local Authorities should be required to admit such patients to appropriate accommodation under Part III of the National Assistance Act.

Leave of Absence

69. Different provisions apply to the grant of leave of absence to patients, according to whether they are private patients in Registered Hospitals or Licensed Houses, or patients of any class in public mental hospitals. Apart from short leave of up to 4 days, the former patients can be given longer leave on trial or for the benefit of their health; the latter may be granted leave on trial only. In Registered Hospitals leave is given by the "Manager" (i.e. the Medical Superintendent) with the concurrence of two members of the Committee; in public mental hospitals, by two members on the advice of the Medical Superintendent.

70. We think that these anomalies should be removed, since, among other reasons, patients of all classes may from time to time be in need of treatment which is best given or can only be given outside the mental hospital.

71. We believe that there is no need for any distinction between the different purposes for which leave may be granted, nor is it necessary to differentiate between short leave for holidays or with a view to early discharge, and prolonged leave of the nature of "boarding out". Moreover, we think it unnecessary that the Hospital Management Committee should be involved, unless there is a need for monetary assistance.

72. We recommend that the Medical Superintendent should have power to grant any patient leave of absence and to terminate this at his discretion. The grant of leave should be for a specified period of up to 3 months, renewable within the statutory time limits in the case of a temporary patient, and indefinitely in the case of a Reception Order patient, provided the Order itself is renewed as recommended above.

73. It is often necessary to send a patient for a short period to another mental hospital to enable some special investigation or treatment to be carried out. At present this is done by way of formal transfer, involving special transfer orders, and the full admission procedure,

including the sending of notices and reports to the Board of Control, has to be gone through twice over. We recommend that it should be made possible to effect such temporary transfers by a grant of leave of absence from the sending hospital and without any formality on the part of the receiving hospital.

74. There is at present no provision for the grant of leave of absence to a voluntary patient, it being assumed that where leave is desired the patient will discharge himself and later apply for readmission. This involves unnecessary work in completing forms, making out new case-papers, etc. and moreover the procedure generally is disliked by the patients themselves. We recommend that voluntary patients should be allowed leave in the same way as others.

75. It is our hope that in future more use will be made of the procedure of "extended leave" to enable mild chronic patients to be boarded-out with relatives or friends.

76. The Hospital Management Committee should have power to make monetary allowances, within prescribed limits, to patients on leave. There are cases, however, where it is more appropriate for the patient's maintenance to be paid by the National Assistance Board, e.g. where the patient's family are already being assisted, or where the patient himself had been assisted before his admission to hospital. Moreover, in "extended leave" cases, the financial responsibility should always be undertaken by the Board, for, since hospitals work within a strictly limited budget, money spent on boarded-out patients would be at the expense of those remaining resident. It is important that in deciding on the amount to be allowed to the patients, the Board should have regard to the recommendations of the hospital authorities, to meet the special circumstances, medical or social, of each case; and it should not be necessary for the patient to make his own application for assistance.

Absence Without Leave

77. We think that the period of 14 days during which a patient absent without leave may be brought back might with advantage be extended to 28 days.

78. We recommend a change in the procedure for recapture. At present the only persons who may retake a patient are officers and servants of the hospital or other persons authorized in writing by the Medical Superintendent. Some doubt exists as to the powers of the Police, although commonly the Police are willing to act at the request of the hospital. There is no authority to lodge the patient anywhere pending the arrival of staff from the hospital; moreover, since he can only be returned to the hospital from which he is absent, much inconvenience and expense in time and money result whenever a patient finds his way to a distant part of the country.

79. We recommend, therefore, that power should be given to the Police and to Mental Welfare Officers to apprehend such a patient and for the latter to lodge him temporarily in any hospital designated for emergency admissions. It should, moreover, not be compulsory for the patient to be returned to his original hospital, and in cases where a considerable journey is involved, arrangements should be made for the patient's transfer to a mental hospital nearer to the place where he was apprehended, if there are no special reasons to the contrary.

Transfer of Patients

80. The present provisions governing the transfer of patients from one mental hospital to another are in general satisfactory. Much benefit has resulted from the abolition of chargeability, so that patients can now be moved freely for convenience of visiting or special treatment, although the present pressure on accommodation often means that transfers can only be effected on an exchange basis. Considerable difficulty still exists, however, in effecting transfers from one part of the United Kingdom to another, since orders made in one part of the Kingdom are not valid elsewhere. We recommend that the Act should include provisions enabling temporary or reception order patients to be transferred as required between England and Wales, Scotland, Northern Ireland, the Isle of Man and the Channel Islands, and, by treaty, to and from the Irish Republic. We recommend also that the procedure for the transfer of private patients should be simplified: in particular, it seems unnecessary that the previous consent of the Board of Control should be required.

Patients' Property

81. The existing provisions for the protection of patients' property while in hospital operate very satisfactorily in long-stay cases, and we should like to pay a tribute to the kindly and personal interest taken by the officers of the Court of Protection, of the Official Solicitor's Department, and of local authorities acting as Receivers, in the welfare of the patients with whom they are concerned. Nevertheless we consider that there is a great need for a simple and rapid interim procedure which can be brought into action within a matter of days from the time of the patient's admission. We have in mind cases where delay may mean grievous financial loss to the patient; for instance, where rent charges accumulate because no one has authority to terminate the tenancy although it is plain that the patient will never be fit to return to his home; or where a small business will lose all saleable value unless it is sold immediately or someone is appointed to manage it.

NOTIFICATION OF DEATH TO CORONER

82. The law at present requires that the death within the hospital of any temporary or certified patient shall be reported to the Coroner in a prescribed form, giving particulars of any unusual circumstances attending the death and of any injuries present at the time; this requirement does not apply to voluntary patients. It appears that in a number of areas the provision is interpreted by the Coroner as requiring him to investigate every death, and to have the relatives of every patient interviewed and questioned by his officer. This is a distressing and vexatious practice which we most strongly deprecate. It should be remembered that particulars of all deaths are notified to the Board of Control, and unusual circumstances are immediately notified to the Coroner in accordance with the usual practice of all hospitals. We believe, therefore, that statutory notification to the Coroner is unnecessary and undesirable, and we recommend that it should be discontinued.

POWERS AND DUTIES OF THE MEDICAL SUPERINTENDENT

83. The provision by which the medical officer or one of the medical officers of the mental hospital ("asylum" as it was then called), was to be its Superintendent was first enacted in 1853, and was the direct result of the exposure of evils and abuses which were found to be due to divided and confused responsibilities within the hospitals. Authority was given to the medical man in order that the function of the asylum as a place of treatment should be emphasized and its work co-ordinated from this point of view. In later years, Medical Superintendents often complained that Hospital Committees imposed upon them personally an undue amount of non-medical administrative detail, which would have been better delegated to lay officers. "Medical Administration" in this exaggerated sense is now obsolete. But the preservation of "Medical Authority" is, we believe, as necessary now as it was a hundred years ago, and for the same reason. This opinion was endorsed by the previous Commission, and we are in full agreement with the conclusions expressed in paragraphs 189 to 195 of their Report.

84. We have given consideration to another aspect of the Medical Superintendent's position, arising out of the better medical staffing of mental hospitals in recent years, and the enhanced status and clinical independence of the senior staff. It has been suggested that the Medical Superintendent's statutory responsibilities, in such matters as the discharge of patients or the writing of continuation reports, should be transferred to the medical officers in charge of individual cases. We do not advise this, for several reasons. It would, we think, be impracticable to define the professional standing or rank which would entitle a medical officer to undertake these responsibilities. "Consultant status" has been suggested, but it must be remembered that the hierarchical structure set up by the Minister of Health for the purpose of determining conditions and terms of service is liable to alteration at any time. It might also be difficult to decide who was the appropriate medical officer to carry out the statutory duty, for instance, in cases where a patient has been transferred temporarily from one department of the hospital to another in the interests of his proper classification or treatment.

85. We think it best that the Medical Superintendent alone should be referred to in the legislation; but it should be understood that this indicates his duty to ensure that the provisions of the law are carried out, rather than an obligation to act personally in every case. The principle of delegation is recognized in the Mental Deficiency Regulations, 1948 (Paragraph 6), where it is laid down that certain duties imposed on the Superintendent may be performed by some other person duly authorized by him. We think that this principle should be made of general application.

LICENSED HOUSES AND HOMES

86. The previous Royal Commission was unanimous in recommending that the present system, under which a limited number of licensed houses exist, should come to an end; the members were divided as to whether these houses should be abolished altogether or should be placed upon a new footing. No action was taken on any of these recommendations, but the Mental Treatment Act of 1930 permitted the establishment of approved nursing homes for the reception of Voluntary and Temporary patients.

87. Since the admission of Temporary patients involves the element of detention, and since under our proposals the differences between the Temporary and the Reception Order patient will be still further diminished, there seems to be little purpose in maintaining the distinction between the approved nursing home and the licensed house, and we recommend that they should be amalgamated under a single designation.

88. Economic conditions in recent years have prevented the establishment of more than a few approved nursing homes, and have considerably reduced the numbers of licensed houses. Those that remain are, we believe, efficiently conducted and meet a real public demand. Some would be placed on an economically sounder footing and might be saved from extinction if they were allowed to extend their accommodation to provide for a larger number of patients; at present this is prohibited by Section 207 (5) of the Lunacy Act of 1890. We recommend that the disability should be removed, and this would follow naturally from the amalgamation of the status of these houses with that of approved nursing homes. We believe that the licensing or approving authority should in all cases be the Board of Control and that the

establishment of new homes, as well as the enlargement of existing ones should be permitted. We suggest that approval might be for all categories of patients, or limited to certain categories only. In general we are in agreement with the recommendations made in Paragraph 244 of the previous Commission's Report as to the conditions under which homes might be approved.

CRIMINAL PATIENTS

89. Although the detention and care of "Broadmoor" patients is outside the terms of reference of the Royal Commission, we think it may be permissible for us to state our views concerning the admission of such patients to ordinary mental hospitals, inasmuch as their presence may be held to affect the welfare of other hospital patients. Further, we are putting forward proposals concerning certain patients not now classified as "Broadmoor" patients, but for whom we believe that special provision should be made.

90. In general we are satisfied that "Broadmoor" patients may continue to be admitted to mental hospitals by order of the Home Secretary. They are, for the most part, persons serving sentences for comparatively minor crimes, and had their mental disorder been present at the time of the offence, or arisen after their liberation, there would have been no question of the propriety of their admission to the mental hospital.

91. Local conditions, however, may make a particular patient unsuitable to be received in a particular hospital. We recommend, therefore, that in all cases the Medical Superintendent of the receiving hospital should be given full details of the case before the Order is made, and regard should be paid to any representations he may wish to make.

92. A proportion of patients certified while serving a prison sentence are detained at Broadmoor. When their sentence expires they cease to be "Broadmoor" patients, and are transferred to ordinary mental hospitals. We think that in future such transfers should be subject to the opinion of the Medical Superintendent of Broadmoor that the patients are suitable for ordinary mental hospitals, and if he considers them not to be suitable they should remain at Broadmoor under the provisions suggested below.

93. An anomaly which we suggest should be rectified is the loss by "Broadmoor" patients of the remission of sentence which they might have earned by good conduct had they remained in prison. This is generally felt as a grievance and causes discontent, which may easily spread to other hospital patients. We recommend that remission should be granted on a favourable conduct report by the Medical Superintendent.

94. The term "Broadmoor patient", which has been introduced to take the place of the former "criminal lunatic", is, we think, an unfortunate one. In the public mind "Broadmoor" implies murder and other crimes of violence, and mental disorder manifested by homicidal tendencies; but the prison patients selected for admission to mental hospitals are precisely the ones who are free from such tendencies. We suggest that some less misleading term should be used, such as "Home Office patient".

95. On the other hand, patients are from time to time admitted to mental hospitals who on common-sense grounds ought to be sent to Broadmoor or some similar institution. As an example we may take the case of a man who has served a sentence for attempted murder. Some time after his release he shows signs of mental disorder and is certified and admitted to a mental hospital. (It is even possible that he had been insane previously and had been detained at Broadmoor.) In hospital it becomes evident that his homicidal tendencies are again active, and his presence may cause great alarm to his fellow-patients as well as to the staff. Under the present law, nothing can be done until the patient actually attempts murder, and then the whole procedure of committal and trial must be gone through before he can be given the control and supervision which he needs.

96. This is in striking contrast to what obtains in the field of mental deficiency. Under the Mental Deficiency Acts, two large institutions receive violent and dangerous patients by simple administrative arrangement and without the need for criminal proceedings.

97. We do not suggest that anything on this scale is necessary in the field of mental disorder, since mental hospitals are well able to care for patients liable to ordinary outbursts of violence, but we think that in cases where there is a reasonable apprehension of homicide, or a homicidal attack has actually been made, the Board of Control should be empowered to order the patient's transfer to Broadmoor or some analogous institution. It is not expected that more than ten or twelve cases a year would need to be dealt with in this way. Similarly a patient already in Broadmoor and whose sentence expires should be retained there if he appears to be dangerous.

MENTAL DISORDER IN OLD AGE

98. The Association has in recent years given much thought to the problems of mental disorder and decay occurring in old age. In addition to research carried on by individual members, a special committee was set up in 1951 to study questions arising from the increase in the number of such patients in mental hospitals, and to make recommendations.

99. We wish to endorse the conclusions arrived at by the committee and its recommendations. An abbreviated version of its Report is submitted as an Appendix to this Memorandum.

100. It was never the intention that the County Asylum, later the Mental Hospital, should be used for the reception of patients showing mild mental decay in old age. Such persons were regarded as properly cared for in the workhouses and workhouse infirmaries, and their

successors the public assistance institutions and the chronic wards of municipal and county hospitals. During recent years, however, there has been a serious reduction in such accommodation, due in the first place to the closing of old and obsolete institutions and the upgrading of infirmaries to hospitals dealing mainly with acute illness; and latterly to war damage and staff shortage. This has happened at a time when the aged population has become greater, both absolutely and relatively, and when various more or less unforeseen social factors, described in the Report, have favoured hospital rather than home care. The consequence has been the increasing use of the mental hospitals for this class of patient.

101. On the other hand, recent research has shown that a large proportion of patients in this age group suffer from mental illnesses quite similar to those occurring at earlier ages, and equally responsive to the skilled treatment given in mental hospitals.

102. It follows that facilities for careful observation and diagnosis are required, and that patients should be admitted to whichever type of hospital best suits their needs.

103. Cases of mild senile decay should be provided for, if able-bodied, in Local Authorities' Part III Accommodation; if physically infirm, in geriatric sections of general hospitals, or annexes connected with them. Cases of senile decay associated with severely disturbed behaviour are properly admitted to the mental hospitals, as also cases of mental illness (psychosis), such as depressions and delusional states, which are liable to arise in old age more commonly than is often supposed.

104. The admission to mental hospitals of large numbers of mildly demented old people leads to severe overcrowding and to the exclusion of other patients in need of active treatment, and these are the reasons which have prompted us to suggest remedies. We deprecate very much, however, any suggestion that the patients themselves are harmed or made unhappy by their environment in the mental hospitals. They are housed in separate wards and do not associate with cases of acute mental illness; they are looked after by nurses to whom their care is a welcome relief and change from their other duties. Their occasional disturbed behaviour is understood and tolerated. They appreciate the company, or merely the presence, of the young people whom they meet at associated entertainments. When physically ill they can be nursed in their own wards and often in their own beds.

105. The proposal is sometimes made that all patients over a certain age—60 or 65—should be entitled to admission to mental hospitals under some special legislative provision, and so be exempted from the "stigma of certification". We believe that such proposals are based on imperfect acquaintance with mental disorder as a whole, and are unjust to other patients who are equally deserving of consideration.

106. If the proposals we have put forward for the admission of all cases as either Voluntary or Temporary patients are adopted, very few senile patients will remain to be dealt with by Reception Order, since the great majority will have been discharged or have died within two years of admission, or will have acquired Voluntary status; and the stigma of the Reception Order itself will have been largely removed by the suppression of the opprobrious terms associated with it.

107. We conclude, therefore, that no special legislation is needed to deal with the mental disorders of the aged, and that the problems we have discussed can be solved by practical measures within the framework of the general health services and of the comprehensive mental treatment legislation advocated here.

PART 2

MENTAL DEFICIENCY

108. Before outlining our proposals for changes in the law, it is necessary to state briefly what we consider to be the nature of mental deficiency and how this conception should influence legislative action.

109. Mental Deficiency is not to be regarded as a disease or group of diseases in the medical sense, but as a term covering a large number of individuals whose common feature is a failure to acquire the ability to meet the minimum requirements of the society in which they live. They may indeed be suffering from the effects of physical disease or injury, maldevelopment before birth, brain injury at birth or later, abnormalities in the chemistry of the body, infections of the brain in childhood or adolescence, and so forth. Others, however, owe their disability to adverse environmental conditions in early life. And there are many who are not qualitatively different from normal individuals, but who happen to belong to the lowest group of a continuous range of mental giftedness extending over the whole population.

110. All these conditions are rightly regarded as a failure of the mind to develop, hence the present legal definition of mental defectiveness as "a condition of arrested or incomplete development of mind". For practical reasons, it is required that the condition shall have existed before the age of eighteen. As regards causation the definition is comprehensive, but not quite comprehensive enough; the defectiveness is required to have arisen from inherent causes or to have been induced by disease or injury, but defect arising from a psychological cause in early age has not been recognized.

111. This "condition of arrested or incomplete development of mind" may, however, be manifested in very varied ways. A usual manifestation is failure to develop what is com-

monly known as intelligence—functions which can be measured by psychometric methods and assessed under such terms as "mental age" or "intelligence quotient"; but this is by no means invariable, and in other cases the undeveloped mind may be manifested chiefly by failure to attain normal control of the emotions or to achieve the qualities needed for normal social behaviour.

112. Disturbances of emotion and adaptation may also occur in conditions other than mental deficiency, and the diagnostic skill of the psychiatrist is required to differentiate between the developmental failures now under consideration, the adjustive disorder of the psychoneuroses, the deeper abnormality of gross mental disease, or psychosis, and the more indeterminate anomaly of the psychopath.

113. Mental deficiency legislation exists to meet the need of the afflicted individuals for special care and treatment, and also to some extent in the interests of prevention and of the protection of the community. This need arises out of the patient's inability to meet the minimum requirements of society, or in brief his social inadequacy. Social inadequacy is, therefore, the criterion for bringing into operation the special care measures provided by the law, and it is immaterial whether the inadequacy is associated with a lack of "intelligence" or with an emotional or adaptive defect.

114. That this was the intention of the Mental Deficiency Acts is shown by the definitions of the four classes of defectives recognized by the Acts, which are framed entirely in terms of social capacity and social behaviour. But, possibly because the study and measurement of "intelligence" came earlier in date than that of personality and social maturity, there has been a tendency in practice to require, as evidence of mental defect, that the patient should fall below a certain arbitrary level on one of the recognized "intelligence test scales".

115. We recommend that in future legislation the wider conception of mental defect should be recognized, and that it should be expressly stated that the condition of arrested or incomplete development of mind shall be judged by the patient's social inadequacy.

TERMINOLOGY

116. It is generally agreed that the present terms are disturbing to the public and especially to the relatives of the patients. The adjective "mental" is so closely associated in the public mind with severe mental disorder as to be unacceptable in any other sense; press articles and news items constantly confuse mental disorder and deficiency. We suggest that in the new Act the words at present used as the definition should become the title itself, i.e. the term "person suffering from incomplete or arrested development of mind" should be used instead of "mentally defective person". This might be abbreviated to "undeveloped" or "under-developed person", "socially inadequate person", or "patient", as the sense may require.

AGE LIMIT

117. The present Act requires that there should be evidence that the defect has arisen before the age of 18. We recommend that an age limit should be retained, but there might be advantage in raising it to 21. The justification for this is that social inadequacy may not become evident until the individual is faced with the need for adaptation to adult conditions, such as employment or national service.

CLASSES OF DEFECT

118. We are of the opinion that there is no need to retain the present legal distinctions and definitions of the grades of idiot, imbecile, feeble-minded and moral defective, and these terms should not appear in documents which may be seen by the patient or his relatives, though clinically the first three terms may still be found of use to describe briefly the degree of defect.

119. We suggest instead that the following definitions should be used for the term "socially inadequate".

"The expression 'socially inadequate' shall be deemed to include such conditions of arrested or incomplete development as render persons in whom they exist:

(a) incapable of guarding themselves against common physical dangers;
(b) incapable of managing themselves or their affairs or, being children, of being taught to do so.
(c) unable to conform to the generally accepted standards of social behaviour or, being children, of being taught to do so;
(d) incapable, in the case of children, of benefiting from the education provided in schools under the Education Acts or unsuitable for attendance at such schools."

120. For the purpose of deciding on a patient's eligibility to be admitted to hospital without Judicial Order, as explained below, we would introduce a further distinction between patients who are incapable of understanding what is involved in their admission and those not so incapable.

121. We also recommend the abolition of the list of special circumstances rendering a defective "subject to be dealt with"; as will be seen later we are recommending that where a Judicial Order is applied for it should be on the general grounds of a need for care and treatment.

AIMS OF CARE AND TREATMENT

122. Although many defectives need permanent care, there are cases in which improvement may be brought about by medical treatment, and these may be expected to become more numerous with advances in medical knowledge. Many other patients of the higher grade can, by careful training, be enabled to resume their place in the community. We think that this medical and curative aspect should be emphasized rather than that of legal control, and we therefore recommend that the term "care and treatment" should be used instead of "care, supervision and control", and that the places where care is provided should be called hospitals instead of institutions.

METHODS OF ADMISSION TO HOSPITAL

123. There should be provision for four classes of admission to care and treatment.

(a) To hospital for temporary treatment.
(b) To hospital without Judicial Order, either voluntarily or by "placing".
(c) To emergency accommodation pending the making of an Order.
(d) To hospital or guardianship under Judicial Order.

(a) *Temporary Treatment*

124. By this is meant admission to hospital for a limited period for purposes of observation and diagnosis, or for a short course of treatment, or on grounds of domestic urgency. Admission for the last two reasons has already been sanctioned by the Ministry of Health (Circular 5/52) and the procedure has proved most valuable, enabling many patients to be cared for at home, but admitted to hospital during physical illness, or while the mother takes a much-needed holiday. We recommend that such admissions should be for not more than three months at a time, and should be without formality and subject only to acceptance by the Medical Officer. Similar notification to the Board of Control as is now used should be required of the Medical Officer.

(b) *Admission without Order*

125. We believe that the principle of voluntary admission should be applied in the field of mental deficiency in a similar way to that provided for mental disorder, and we recommend accordingly that the Medical Officer of a hospital for defectives should be empowered to accept:

(i) At the patient's own request, a patient over the age of 16 years.
(ii) At the request of the parent or guardian, or of the Local Authority where there is no parent or guardian, a patient under 16 years of age.
(iii) At the request of the parent or guardian, or of the Local Authority where there is no parent or guardian, a patient over the age of 16 who is incapable of forming an understanding of what is involved in his admission.

126. A request under (ii) should be supported by one recommendation, made by any medical practitioner. For admissions under (iii), two medical recommendations should be required, of which one should be made by a medical practitioner specially qualified and experienced in mental deficiency and approved for the purpose by the Board of Control. It should be permissible for not more than one of the recommendations to be made by a member of the staff of the receiving hospital.

127. Each case admitted under the provisions of this section should be the subject of special psychiatric examination, and a formal report should be sent to the Board of Control not later than six months after admission and thereafter at prescribed intervals.

128. *Leave of absence.* The Medical Officer should have power to grant to patients under this section leave of absence for any period.

129. *Discharge and Withdrawal.* The Medical Officer should have the power to discharge any patient under this section. A voluntary patient under (i) should have the right to discharge himself; and the parent, guardian or Local Authority, as the case may be, should be empowered to withdraw a patient admitted under (ii) or (iii); in all cases on giving 72 hours' notice. A patient admitted under (ii) should be automatically discharged on reaching the age of 16; he could, however, be re-admitted under paragraph (i) or (iii) or under Judicial Order, whichever is appropriate.

(c) *Emergency Admissions*

130. The present procedure by which defectives may in emergency be admitted to a "place of safety" is satisfactory. There is, however, at present no stated limit to the time during which the patient may be retained in the "place of safety", and we suggest that a period of not more than two months should be allowed. The procedure should only be used with a view to placing the patient under Order, and temporary admissions needed for other reasons should be effected under the procedure recommended in Section (a) above.

(d) *Admissions under Judicial Order*

131. We recommend the retention of the Judicial Order for cases in which the patient is ineligible for admission under Section (b) or in which there has been failure to use the facilities of Section (b) or they have ceased to be used, or where it is desired to place the patient under guardianship. In all such cases it should be necessary to show clearly that admission to in-patient care, or to guardianship, is essential in the interests of the patient or for the protection of the public.

132. Patients ineligible for admission under Section (b) will be those over the age of 16 who do not themselves request admission and who are capable of understanding what admission involves. Cases where there has been failure to use the facilities of Section (b) will be those where the parent or guardian fails or refuses to apply for the patient's admission although this is urgently necessary. Cases where the facilities of Section (b) have ceased to be used will be those where a patient admitted without order discharges himself, or is withdrawn by the parent or guardian, though still in need of care and treatment.

133. We believe that in all such cases the intervention of a Justice is essential for the reassurance of the relatives and the public, the protection of the medical practitioner and officials concerned, and the public assertion of the principle of the liberty of the subject. Especially when dealing with the higher grades of defectives, safeguards are needed beyond what is required in the field of mental disorder, because the nature of the condition is not always apparent to the relatives or the public; moreover, because of the need for consistent care and stable environment it would be impracticable to concede to the relatives of defective patients under Order (who by definition have failed to provide the necessary care), the same powers of discharge as may be allowed in the case of mental illness.

134. In addition to the above, the Judicial Order will be needed for cases in which a Court recommends that a petition for such an order should be presented. The provisions of the present Sections 8 and 9 of the Mental Deficiency Act, 1913, by which orders may be made by the Court itself, and in certain circumstances by the Home Secretary, should be retained.

PROCEDURE FOR JUDICIAL ORDER

135. The petition should in all cases be presented by the Local Authority, and should include a statement of the reasons why action is being taken, and of the evidence showing that admission is essential for the welfare of the patient or the protection of the public.

136. There should be two medical certificates, and one of them should be given by a specially qualified practitioner. This should apply also to the medical evidence required under Section 8.

137. The present rules as to time limit should continue.

138. Since the use of the Judicial Order will be limited to cases where there is a proved need for admission, it should not be necessary to obtain the consent of the parents or guardian; but they should have the right to be present at the proceedings and to be heard or to be represented.

139. In the case of patients who have discharged themselves or have been withdrawn from hospital, it is inadvisable that proceedings should take place within the hospital. Such patients should normally be allowed to leave, and the case notified to the Local Authority, who will take action if this appears necessary. But where the Medical Officer is of the opinion that the patient's departure from hospital would involve danger to himself or others, he should have power to issue a certificate barring the discharge and to retain the patient in hospital until a petition can be presented and heard; in such cases the hearing might take place within the hospital.

ORDERS BY THE HOME SECRETARY

140. These apply to patients found to be defective while undergoing penal detention. We do not support the suggestion sometimes made that such Orders should cease to operate when the Court's sentence has reached its end. It has been found by experience, however, that the present limitations placed upon the granting of parole to patients admitted under such Orders hampers their proper treatment, and we recommend that the rules be reconsidered.

PROVISIONS REGARDING PATIENTS UNDER CARE

PERIODICAL RECONSIDERATION

141. The present system of periodical reconsideration is in our opinion necessary, and for the reasons previously stated we consider the Justices' function is an essential part of the procedure. We recommend, however, that it should apply only to cases under Order.

142. The change from a yearly to a five yearly period between successive reconsiderations is, we think, too abrupt, and we recommend that the prescribed periods should be 1, 1, 3 and 5 years, and then every 5 years.

143. No value is seen in the special reconsideration at the age of 21, and we recommend its abolition.

144. At each reconsideration, the parents or guardian should have a right to attend, and they should be notified beforehand of the intended visitation. They should have the right to obtain an independent psychiatric opinion on these occasions on giving due notice. The Regulations should provide that such an independent examination should be held at a suitable time before the patient is seen by the Visitors. The examination should be held at the hospital unless the Medical Officer agrees otherwise, and he should have the right to be present. The external examiner should have full access to the clinical records and other documents in the case.

LEAVE AND LICENCE

145. We recommend that the Medical Officer should have power to grant temporary leave of absence to any patient up to a maximum of six weeks. For any longer period, absence

should be under licence, and this should continue to be granted by the Medical Officer with the concurrence of two members of the Committee.

146. The purpose of granting licence is to provide the most suitable form of help for the individual patient. Its continuance should depend solely on the need for this form of help, and not on any arbitrary time-limit. In many cases, the full benefits of licence can only be received if the patient remains in direct contact with and guidance is given by the hospital which has been responsible for him from the beginning.

147. The clause in the "form of authority" restricting association with the opposite sex is not in our opinion appropriate if interpreted in any strict sense, since the intention of the licence is to train the patient to live a reasonable life in the community. It is in any case commonly disregarded. We recommend that it should be replaced by a clause in more general terms, restraining the patient from forming any undesirable associations.

Absence Without Leave

148. We recommend that patients absent without leave should be discharged automatically after remaining at large for six months. We suggest also that changes should be made in the procedure for retaking such patients on the same lines as those recommended for mental hospitals.

Discharge from Order

149. We recommend that the Board of Control's present power of discharge should continue. In addition, the Visiting Justices, at any of their visits, should have the power to order a patient's discharge on the advice of the Medical Officer.

150. Under the present Acts, a patient discharged from Order but still needing supervision can only receive this if he is "ascertained" as a new case by the Local Authority. We recommend that it should be made possible for a patient to be discharged directly to statutory supervision.

Transfer to Mental Hospital

151. Cases arise from time to time in which it is desirable to transfer a patient temporarily from a mental deficiency to a mental hospital for the purpose of some special treatment which can most conveniently be given there. We recommend that such a transfer, for a maximum period of three months, should be made possible, subject to the consent of the Medical Officer of the receiving hospital, without any formality beyond the granting of leave or licence to the patient.

152. Transfer of defective patients to mental hospitals for longer periods may be needed because of supervening mental illness. In such cases the ordinary procedure for admission to the mental hospital as a voluntary or temporary patient should be followed, but neither this nor any subsequent Reception Order should supersede an Order made under this part of the Act, and on discharge from the mental hospital the patient should, if the Order is still in force, be returned to the mental deficiency hospital or to licence from that hospital.

The Medical Officer

153. In the above recommendations, the term "medical officer" has been used throughout, as it is in the present Acts, to denote the medical practitioner to whom the statutory responsibilities and duties in connection with hospital care are confided. This is because there is no uniformity in the administration of places in which defectives are cared for, or in the kind of medical skill available to them. While the larger institutions are generally under the control of a Medical Superintendent and have a medical staff trained and experienced in psychiatry and in the particular field of mental deficiency, many defectives are cared for in small units under the control of lay persons or nurses, with medical attention given by a general practitioner. We recommend that in future all in-patient defectives should have skilled psychiatric supervision made available to them either by grouping small units with large ones under a Medical Superintendent, or where this is impracticable by arranging for periodic visitation of the unit by a psychiatrist of similar standing. In hospitals where there is a medical staff of sufficient status, the principle of delegation should apply, as recommended for mental hospitals.

Notification of Deaths to Coroners

154. Our recommendations under this heading in connection with mental hospitals apply equally to mental deficiency hospitals.

General Recommendations

Unified Responsibility for Care

155. The present division of responsibility between the Local and Hospital Authority for the same patient at different stages of his life has the same disadvantages for mental defectives as we have previously pointed out in connection with mental disorder. Every means should be devised to promote co-ordination and unity in the care of the patients.

156. In carrying out its duties under the Act the Local Authority should invariably make

use of skilled psychiatric assistance. In particular the examination of suspected cases of mental defect should be made by a psychiatrist experienced in this field.

COMMUNITY CARE

157. An expansion of facilities is needed for community care, both of patients discharged or on licence from hospitals and of those not requiring hospital care.

158. Clubs under psychiatric supervision and with suitable recreational facilities should be established; they might be combined with out-patient clinics, and some might develop along the lines of "day hospitals".

159. Residential Hostels are needed for patients on licence and at work, as well as for uncertified defectives of various ages who cannot live with relatives and cannot make suitable arrangements for themselves. Some of these hostels could be provided jointly by the Local and Hospital Authorities. Occupation centres and special workshops should be further developed.

FINANCIAL SUPPORT

160. In discussing the granting of leave to patients in mental hospitals we drew attention to the need for co-operation between the National Assistance Board and the hospital, and recommended that the Board should have regard to the medical and social requirements of each case, on the advice of the hospital. We believe that the same principles apply to the mentally defective. Financial support of the patient in the community should not be divorced from the general treatment of which it must be a part; it should not, therefore, be left to the unguided action of the Board operating a fixed scale of assistance.

161. In the case of patients under supervision by the Local Authority, we recommend that the Authority itself should have power to give financial support.

CIVIL RESPONSIBILITIES OF DEFECTIVES

162. There appears to be a need for clarification of the law of contract and tort in regard to mental defectives, as well as of their civil status, and we recommend that these matters should be examined with a view to a re-statement or revision of the law.

163. As regards marriage, the Association has stated its views in evidence given before the Royal Commission on Marriage and Divorce. It asked for clarification of the provisions of Sections 8 (1) (b) of the Matrimonial Causes Act, and suggested that the Section should be taken to apply only to defectives "ascertained" or "certified" under the Act. If our present proposals are adopted, a suitable alteration will be needed in this interpretation.

PART 3

PSYCHOPATHIC STATES

164. There remains to be considered a group of persons suffering from forms of mental abnormality which may be difficult to classify or to relate to the more definite mental illnesses or defects, but which nevertheless affect their behaviour adversely so as to render them delinquent or otherwise anti-social. Such conditions are loosely called "Psychopathic".

165. Behaviour of this kind may, in many cases, be a manifestation of mental defect, as explained previously; it may result from one of the grosser mental illnesses in an early or not fully developed stage, such as schizophrenia or the manic-depressive psychosis; or it may be related to a psychoneurosis such as hysteria and be associated with other neurotic symptoms. Similar behaviour may also follow organic disease or injury of the brain.

166. But when these well-recognized groups have been eliminated there remain a number of patients whose daily behaviour shows a want of social responsibility and of consideration for others, of prudence and foresight and of ability to act in their own best interests. Their persistent anti-social mode of conduct may include inefficiency and lack of interest in any form of occupation; pathological lying, swindling and slandering; alcoholism and drug addiction; sexual offences, and violent actions with little motivation and an entire absence of self-restraint, which may go as far as homicide. Punishment or the threat of punishment influences their behaviour only momentarily, and its more lasting effect is to intensify their vindictiveness and anti-social attitude.

Difficulties in medical diagnosis should not, however, stand in the way of practical measures, and it is clear that what is needed is the provision of facilities for treatment on a voluntary basis for those who may be benefited and are willing; and for the compulsory segregation, with treatment where possible, of severe cases, where this is needed for the protection of others.

167. Logically, it might be contended that all such cases are instances of either mental defect or disorder, according to whether the condition arose during development or was acquired later; and therefore, if there is severe disturbance of behaviour it should be possible to deal with the patient under the compulsory provisions applicable to mental disorder or mental defect.

168. Undoubtedly, a number of such cases are so dealt with every year. But the "intellectual" bias in mental deficiency practice has generally excluded patients with emotional

and adaptive defects, even when they were true failures of development; and in the practice of mental disorder, a similar tradition has identified "certifiable insanity" too closely with loss of intellect or the presence of delusions. Consequently, psychopathic patients, though their minds are far from sound, are commonly said to be "not certifiable as of unsound mind".

169. There is, of course, no legal obstacle to the admission of such persons as voluntary patients to mental hospitals, or without formality to neurosis centres or psychiatric wards of general hospitals. The Industrial Unit at Belmont Hospital is an outstanding example of a centre where treatment is given on a voluntary basis, using new and original methods which have been devised in the Unit itself. The difficulty is that such centres are not available in sufficient numbers or variety, and the mental hospital is suitable for only a limited proportion of patients of this kind.

170. Care and treatment under compulsory conditions can be and are in a number of cases provided by means of a prison sentence, if an offence has been committed which is so punishable. Following the East-Hubert report of 1939, psychological treatment is being given within the prison to a limited extent, and there will be further facilities when the proposed special prison for such cases is opened. Treatment under prison conditions is not, however, always appropriate, and its duration is always limited by the length of the sentence.

171. A measure of compulsion of a different kind has been introduced by Section 4 of the Criminal Justice Act, 1948. It is noteworthy that this has been done without any attempt at a definition or even a description of the mental states to which it applies. It is sufficient that "the offender's mental condition, though requiring and susceptible to treatment, is not such as to justify certification". It would seem that a condition "susceptible to treatment" must be an abnormal one; and in practice it is the abnormality which is established by the medical report, and susceptibility to treatment is taken for granted, even in cases in which the prognosis is very poor.

172. The Court's powers under Section 4 are limited to making it a condition of probation that the offender shall submit to treatment for a maximum period of 12 months, in a mental hospital or elsewhere.

173. We suggest that in cases where a more prolonged detention is necessary for the protection of others, compulsion might best be applied by an extension of the Court's powers. That is to say that the Court, being satisfied that the offender's mental condition, though requiring and susceptible to treatment, is not such as to justify his being dealt with as a case of mental disorder or defect, and being also of opinion that the offender needs care and supervision for the protection of others, might make an order, similar to that under Section 24 of the Act (now superseded by Section 30 of the Magistrate's Courts Act, 1952) requiring his admission to an appropriate institution. The order might be valid for a limited time, and might be renewable by a procedure introducing reconsideration by visiting Justices or by a special Visiting Board.

174. In some cases it may be desirable to use the method of Section 4 first, and if the patient at the end of the year has not responded to treatment, the proposed new powers could be invoked.

175. If, however, it is felt that such extended powers could not safely be given to a Court without the introduction of a more precise definition of the class of case to whom they are to be applied, we would recommend a definition based on that suggested by a committee of the National Association for Mental Health, modified to accord with the terms used in our other recommendations:

"That the offender is a psychopathic offender; that is to say, a person who though not suffering from mental illness or from arrested or incomplete development of mind, is yet mentally abnormal in that he has shown persistent disturbance of emotion and will, resulting in irresponsible behaviour and delinquency or cruelty, and is incapable of modifying this behaviour in the light of experience."

176. Given these extended powers for action by the Courts, and assuming that suitable institutions can be provided for the reception of both Court cases and voluntary patients, as recommended below, it should be possible to bring under care and treatment the majority of persons needing such care. There will remain, however, a group of persons unprovided for because their anti-social behaviour is of a kind that does not lend itself easily to prosecution before the Courts. The psychopath's behaviour may consist of a constant repetition of acts of cruelty, each too trivial to be a punishable offence, but by their accumulation "causing danger to the bodily or mental health of others or giving rise to a reasonable apprehension of such danger".

177. This kind of conduct is familiar to the Matrimonial Courts, and spouses subject to it are able to obtain relief by divorce proceedings, but such relief is not available to other members of the psychopath's family, or to members of the public who may be affected by his behaviour.

178. It should be noted that when such conduct occurs in association with the "traditional" signs of mental illness mentioned above, it is always held to provide additional justification for compulsory treatment; in fact it has at some periods been argued that compulsion is only legitimate in the presence of such conduct.

179. We think, therefore, that there is a case for some procedure by which such persons can be brought under care. But because such a measure, though not involving any new

principle, does mean an extension of present custom and practice, safeguards of an exceptional nature should be provided.

180. We suggest that the procedure should be by way of a special form of petition to a Court, to be presented by the patient's relatives. This should be accompanied by a full statement of the facts, and supported by two medical recommendations, given by the patient's own general practitioner (where possible) and by a psychiatric specialist. If the evidence seems strong enough, the next step would be for the Court to order an examination by an independent specialist. The Court order would sanction the patient's admission to an institution as described below.

Institutional Care

181. Legal provision for care and treatment is, however, of no avail unless suitable institutions are provided where this can be given. To some extent existing hospitals can be used, but it will be necessary to establish special institutions of various types.

182. A certain number of psychopathic patients may be appropriately treated in mental deficiency hospitals, in the company of high-grade patients, from whom they do not differ very greatly.

183. Others may be suitable for admission to mental hospitals (as happens now under Section 4), especially if the hospital has facilities for active psychological treatment and the patient appears likely to benefit from this; or to special hospitals and neurosis centres.

184. New institutions which should be established include:

One or more on the lines of a colony, with a regime under lay disciplinary control and psychiatric advice and treatment provided by a skilled medical staff.

One or more of the Belmont Unit type.

Some on purely medical lines for the treatment of alcoholism and drug addiction.

185. Because variety and suitability are more important than geographical location we recommend that such institutions should be established on a national or inter-regional basis. Further we attach great importance to the careful allocation of the patient to the institution or hospital for which he is most suitable. For this reason we recommend that this allocation should be done, after the Court's order has been made, by a psychiatric authority well acquainted with the facilities and resources available, and able to take into account the needs of the individual patient in relation to these, such as the Regional Psychiatrist. There should be considerable elasticity in the arrangements and patients should be easily transferable from one type of institution to another. Suitable institutions should be open to voluntary patients without formality, as well as to those under Court Order.

186. For the same reason we recommend that, if these proposals or any of them are adopted, they should not be brought into force until sufficient special accommodation has been provided to enable a successful start to be made.

Miscellaneous Recommendations

Proceedings in Juvenile Court

187. We wish to draw the Commission's attention to what we feel is an undesirable provision of the Children Act, 1948, whereby unnecessary distress and actual harm may be inflicted on certain mental patients.

188. Section 2 of the Act provides that a local authority may assume the rights and powers of a parent, if the latter suffers from some permanent disability rendering him or her incapable of caring for the child. If the parent objects, the local authority may complain to a Juvenile Court, which may overrule the objection; the Court, however, must satisfy itself that the parent is unfit to have the care of the child by reason of unsoundness of mind or mental deficiency.

189. It will thus be seen that in such cases the issue of the patient's state of mind must be argued in court, evidence heard for both sides, and medical witnesses subpoena'ed. Cases of this kind arise where a mother has left hospital not fully recovered, and it is clear that the child ought to remain in the care of others for the time being, though the patient herself cannot realize this. In such cases the medical evidence has to be given by the doctor who has treated the patient in hospital and may still be treating her as an out-patient.

190. The Association has always opposed anything of the nature of a public trial of insanity except as part of criminal proceedings, and this view has been upheld by successive Royal Commissions. We suggest that the Act should be amended so that any appeal against the local authority's resolution should be a matter for consideration in private by a Judicial Authority.

Patients' Allowances and Rewards

191. We have already referred to two aspects of patients' finances, namely additional measures for the protection of patients' property (Para. 81) and the maintenance of patients on leave (Para. 76) or on licence (Para. 160).

192. We wish to bring to the Commission's notice the inconsistencies and anomalies which exist in connection with the payment to patients in hospitals of benefits, allowances and rewards from different sources. These anomalies arise from the application of various

Acts and Regulations, not specially designed with a view to use in mental or mental deficiency hospitals, and therefore framed without regard to their effects when so used.

193. Many short-stay patients receive benefits which are adequate or even excessive for their needs, but the good effect is often spoilt by delay in the commencement of payments.

194. National Insurance Officers do not always co-operate sufficiently with the hospitals in deciding how the benefits to which the patient is entitled shall reach him, and often money is paid out to relatives to whom too much latitude is given; this applies also to money payable from other official sources.

195. Many long-stay patients are sufficiently "in benefit" to obtain a liberal pocket-money allowance for many years; others not so entitled are dependent on allowances made by Hospital Management Committees, and for those very little can be spared out of the Committees' limited budgets. For this same reason rewards given to working patients are too low, especially in relation to sick benefits, to act as incentives to therapeutic occupation.

196. Married women in whose case maintenance orders have been made before their admission continue to receive this maintenance while in hospital; and in the case of women divorced while in hospital, the Court generally orders the continued payment of pocket-money. On the other hand, other married women have no right to any allowance by their husbands so long as they are receiving "free" maintenance in hospital.

197. We recommend that these matters should receive further consideration, perhaps by an Inter-Departmental Committee, so that these anomalies and hardships may be removed.

The Board of Control

198. We have throughout referred to the Central Authority as "The Board of Control". We believe that the continued existence of the Board, substantially in its present form, is in the interests of the patients, of the hospitals and of the public.

199. We recommend that the Board should be maintained in a position of relative independence, so that its reports may have the value attaching to an impartial inspectorate. Since Society finds it necessary to detain compulsorily a large number of people whom it has no wish to punish, but only to care for and treat, it follows that Society has a moral obligation to see that those so detained are cared for under conditions that satisfy the public conscience. For this reason alone, the hospitals for mental disorder and mental defect need to be inspected and reported on by persons empowered to report and criticize solely from this point of view, uninfluenced by any consideration of departmental policy.

200. We believe also that the scrutiny by the Commissioners of admission documents and continuation certificates is an essential part of mental treatment legislation, since in no other way can a uniform standard be maintained by which the justification for detention can be measured.

201. We recommend that the number of Commissioners should be sufficient to allow of personal visitation of all cases which seem to call for inquiry, and also to allow the visiting Commissioners ample time for their inspections and for preparing their reports. The Commissioners should be persons of such professional standing as to command the confidence of the Hospital Authorities and Staff.

202. For the reassurance and education of the public we believe it necessary that the fullest possible publicity should be given to the work of the mental health services and to the condition and needs of the hospitals. We recommend, therefore, that the Commissioners' collected reports should be published annually, as was done up to 1938, and that there should also be a full Annual Report on the state of the mental health services on a scale commensurate with their importance.

SUMMARY OF MAIN RECOMMENDATIONS

Part 1. Mental Disorder

1. Adult voluntary patients should be admitted without formality; alternatively, the written application should be in the simplest possible form. (Paras. 23-26.)

2. It should no longer be stated that voluntary admission is "for mental illness". (Para. 27a.)

3. Voluntary patients should have the right to depart without giving previous notice. If notice is still required, the period should continue to be 72 hours. (Paras. 28 and 58.)

4. Voluntary patients who become incapable of expressing themselves as willing or unwilling should be allowed to retain their voluntary status. (Para. 29.)

5. All initial admissions other than voluntary should be in the status of Temporary Patient, without a Judicial Order; two medical recommendations to be required, of which one from a practitioner experienced in psychiatry; the period of validity to be one year, extendable to two; the patient to have the right to interview a magistrate after admission. (Paras. 30-41.)

6. Judicial Orders should be necessary after completion of one year (or two years as the case may be) of Temporary treatment; two medical recommendations should be required. (Paras. 42-43.)

7. Changes in terminology should be made in connection with the Judicial Order, and in particular the terms "certification" and "certified patient" should no longer be used. (Para. 44.)

8. Special reports at statutory intervals should be required for patients under Order; changes are recommended in their wording. (Para. 45.)

9. Procedure for emergency admissions should be simplified; it is recommended that either a Mental Welfare Officer, or a relative (with medical support) should be able to make a three-day order (extendable to 21 days) for admission to an observation unit or designated mental hospital. (Paras. 46-49.)

10. Recommendations are made covering the designation of hospitals for this purpose. (Para. 50.)

11. Medical Superintendents of mental hospitals should have discretion to decide on priority of admissions of all categories. (Para. 52.)

12. Local Authorities should take a broad view of the functions and duties of Mental Welfare Officers, who should form an essential part of a comprehensive mental health service. (Paras. 53-55.)

13. The legal provisions for the protection of persons exercising duties under the Act should be extended to all persons giving professional advice or information. (Para. 57.)

14. The Medical Superintendent should retain the power to discharge a voluntary patient. (Para. 58.)

15. In the case of voluntary patients retained in hospital under Recommendation 4, the appropriate relative should have a power of discharge. (Para. 60.)

16. The Medical Superintendent should be empowered to discharge a Temporary or Reception Order patient; the present right of discharge possessed by any three members of the Committee to be retained. (Paras. 61-63.)

17. The "appropriate relative's" power of discharge should be restricted by an alteration in the wording of the barring certificate. (Paras. 64-65.)

18. The definition of the "appropriate relative" should be revised. (Para. 66.)

19. Local Authorities should have a duty to admit to Part III Accommodation patients being discharged from mental hospitals who would otherwise be homeless. (Para. 68.)

20. The provisions regarding leave of absence should be made uniform for all hospitals and all categories of patients. The Medical Superintendent should be empowered to grant leave for specified renewable periods to patients of all categories. (Paras. 69-72.)

21. It should be permissible to grant leave from one mental hospital for the purpose of special treatment at another mental hospital, without transfer formalities. (Para. 74.)

22. Financial provision for patients on leave should be made by the Hospital Management Committee, or where appropriate by the National Assistance Board, who should be required to have regard to the recommendations of the hospital authorities. (Para. 76.)

23. The "recapture" period for a patient absent without leave should be 28 days. (Para. 77.)

24. Recommendations are made for more convenient arrangements in connection with the retaking of patients absent without leave. (Paras. 78-79.)

25. Legal provision should be made for the easy transfer of patients between England and Wales and other parts of the British Isles. (Para. 80.)

26. A simple and rapid interim procedure should be devised for the protection, immediately after admission to hospital, of patients' most urgent financial affairs. (Para. 81.)

27. Routine notification of deaths to the Coroner should be abolished. (Paras. 82 and 154.)

28. The principle of "medical authority" in mental hospitals should continue to be recognized. (Para. 83.)

29. Statutory medical powers and duties should continue to be entrusted to the Medical Superintendent, who should, however, be empowered to delegate them to other members of the hospital staff. (Paras. 84-85.)

30. Licensed houses and approved nursing homes should be amalgamated under a single designation, and freed from the restrictions imposed by the Lunacy Act of 1890. (Paras. 86-88.)

31. The admission of "Broadmoor" patients to mental hospitals should be subject to prior consultation with the Medical Superintendent. (Paras. 89-91.)

32. Patients at Broadmoor whose sentence has expired should not be transferred to ordinary mental hospitals unless suitable in the opinion of the Medical Superintendent of Broadmoor. (Para. 92.)

33. "Broadmoor" patients should retain a right of remission of sentence for good conduct. (Para. 93.)

34. The term "Broadmoor patient" should be replaced by that of "Home Office patient". (Para. 94.)

35. It should be made permissible to transfer a homicidal or potentially homicidal patient from a mental hospital to Broadmoor, or some analogous institution, without indictment or trial. (Paras. 95-97.)

36. The recommendations of the Association's Geriatric Committee are brought to the notice of the Commission. In general, no special legislation is recommended in relation to mental disorder in the aged. (Paras. 98-107.)

PART 2. MENTAL DEFICIENCY

37. Mental deficiency should be conceived as a condition of arrested or incomplete development of mind as judged by the patient's social inadequacy. (Paras. 108-115.)

38. The terms "mental deficiency" and "mental defective" should not be used in legislation; other terms are suggested. (Para. 116.)

39. The age before which the Law requires the defect to have existed should be raised from 18 to 21. (Para. 117.)

40. The present legal distinctions between grades of defect should be abolished, as also the special circumstances rendering defectives "liable to be dealt with". (Paras. 118-121.)

41. Changes in wording are suggested to emphasize the medical and curative aim of the legislation. (Para. 122.)

42. Temporary admission for observation, short treatment, etc., should be permitted for up to three months, without formality. (Para. 124.)

43. There should be provision for the admission without order of certain categories of patients at their own request or at the request of their parents or guardian. (Paras. 125-126.)

44. Special reports should be required in respect of such patients. (Para. 127.)

45. The Medical Officer should be empowered to grant leave of absence to such patients. (Para. 128.)

46. Patients admitted without order should be dischargeable by the Medical Officer, at their own request, or at the request of a parent or guardian, as may be appropriate. (Para. 129.)

47. A "place of safety" procedure should be used for emergency admissions when it is intended to apply for a Judicial Order within two months. (Para. 130.)

48. Admission under Judicial Order should apply to patients of categories not eligible for admission without order, or in cases of proved necessity where there has been failure to use the procedure of Recommendation 43. (Paras. 131-134.)

49. Recommendations are made in regard to the procedure for obtaining a Judicial Order. (Paras. 135-138.)

50. Recommendations are made in regard to patients under Recommendation 43 who discharge themselves or are withdrawn from the hospital. (Para. 139.)

51. Periodical reconsideration by visiting Justices should apply to patients under order, but special reconsideration at the age of 21 is unnecessary. Recommendations are made in regard to procedure. (Paras. 141-144.)

52. The Medical Officer should have power to grant temporary leave of absence to patients under Order; licence for any longer period should be granted by him with the concurrence of two members of the Committee. (Paras. 145-146.)

53. Recommendations are made for an alteration in the "form of authority" used when granting licence. (Para. 147.)

54. Patients absent without leave should be discharged automatically at the end of six months. (Para. 148.)

55. The Board of Control, and the Visiting Justices, should have powers of discharge. (Para. 149.)

56. It should be possible to discharge patients direct to statutory supervision. (Para. 150.)

57. It should be possible to send patients, on leave, to a mental hospital, for the purpose of special treatment, without formality. (Paras. 151-152.)

58. All mental deficiency units should either be brought under the control of a Medical Superintendent or, where this is impracticable, should be visited by a psychiatrist of similar standing. (Para. 153.)

59. The Local Authority should invariably make use of skilled psychiatric assistance. (Para. 156.)

60. Community care should be developed, especially by the provision of clubs and hostels. (Paras. 157-159.)

61. Arrangements for financial support should be on similar lines to those recommended for mental disorder. (Para. 160.)

62. The law of contract and tort in regard to mental defectives should be clarified. (Paras. 162-163.)

PART 3. PSYCHOPATHIC STATES

63. The powers of Courts under the Criminal Justice and Magistrates' Courts Acts should be extended to enable psychopathic offenders to be placed under care and treatment. A definition of "psychopathic offender" is suggested. (Paras. 164-175.)

64. There should be provision, subject to special safeguards, for dealing with psychopathic persons who cannot be charged with any particular offence, but whose behaviour is such that they require care and treatment for the protection of others. (Paras. 176-180.)

65. Although existing institutions can be used for some psychopathic patients, special institutions of various kinds are required. (Paras. 181-184.)

66. The allocation of patients to the appropriate institution should be made by the Regional Psychiatrist. (Para. 185.)

67. Legislation under this Part should not come into force until sufficient special accommodation has been provided. (Para. 186.)

OTHER RECOMMENDATIONS

68. Amendments are suggested to Section 2 of the Children Act, 1948. (Paras. 187-190.)

69. There should be a full consideration of matters relating to patients' monetary benefits, allowances, rewards, etc., with a view to remedying existing anomalies. (Paras. 191-197.)

70. The Board of Control should be maintained in a position of relative independence; its duties of inspection and scrutiny of documents should continue; and its reports should be published in full, together with an adequate Annual Report on the state of the Mental Health Services. (Paras. 198-202.)

APPENDIX

REPORT OF GERIATRIC COMMITTEE, 1951

(1) Terms of Reference

To examine the problem of the elderly and aged patient in mental hospitals and to make recommendations for their more suitable accommodation and treatment.

(2) Nature and Extent of Problem

The Committee was primarily set up because the number of elderly and aged patients in mental hospitals is steadily increasing, resulting in severe over-crowding and, in many instances of other patients, more in need of active treatment, having to be denied admission.

The mental hospital impasse is only one facet of the problem, whose urgency and magnitude has forced itself on the notice of a general public which usually finds old age of little interest or popular appeal.

Between 1938 and 1948 the total population of England and Wales has increased by less than 2½ million (6·0 per cent.), while the 65 years and over population has gone up by over 1½ million (31·4 per cent.) and the percentage of people aged 65 and over in the total population has risen from 7·8 per cent. to 9·3 per cent. in men and from 9·5 per cent. to 12·2 per cent. in women. According to the Royal Commission on Population (1947) as many as 16 per cent. of the population are likely to be 65 years and over in 1977. We should expect this to be reflected in the number of old people in and awaiting admission to hospital, but the actual figures show a much steeper rise.

In the 10 year period 1938-48 the total mental hospital population fell by 3,135 patients, due, no doubt, to fewer available beds, whereas the number of patients aged 65 years and over increased during the same period by 7,674. This constitutes a fall of 10,809 patients under the age of 65 years, and underlines our observation that many younger patients have to be refused admission. The proportion of patients aged 65 years and over to the total mental hospital population rose from 14·8 per cent. to 19·1 per cent. in men and from 19·7 per cent. to 27·6 per cent. in women. Compared with the percentage figures of the elderly in the general population the mental hospital population has risen nearly three times as much in both men and women.

(3) Analysis of Causes of Rising Proportion of the Elderly in Mental Hospitals

The reasons for the alarming rise in the proportion of elderly patients to the total population in mental hospitals can be summarized as follows:

1. Increasing age of general population.
2. Loss of over 3,000 beds in mental hospitals.
3. Loss of beds for elderly patients in Public Assistance Institutions and other hospitals and institutions.
4. Social Factors:
    - (a) Housing shortage.
    - (b) Increased employment of women—no home help.
    - (c) Free accommodation in hospital under N.H.S.
    - (d) Decline of Family, Religious and Social obligations.

1. The increase in age in the general population has been shown to be reflected three-fold in the mental hospital population. This can, in part, be accounted for by the fact that (i) very few mental hospital patients are under the age of 16 years, and (ii) psychiatric illness tends to be more common in the elderly.

2. The reduction of over 3,000 mental hospital patients adds in some measure to the relative increase of elderly patients, because seniles are, for the most part, certified and must be accepted at the expense of uncertified patients mainly of younger age. This reduction of patients has been limited to 3,135 only by overcrowding, because the recognized bed space in mental hospitals was actually reduced by 7,639 beds at the end of 1949.

3. It has not been possible to obtain comprehensive figures for the loss of beds at Public Assistance Institutions, General Hospitals catering for elderly and senile patients, and accommodation under Part III of the National Assistance Act, but it is well known that many such beds, available before the war, are now closed owing to war damage, nursing shortage or economy, or are used for other purposes. The number of beds available for the elderly and chronic sick in pre-N.H.S. Act Local Authority Hospitals and Institutions had fallen in the South-East Metropolitan Region from 3,733 in 1938 to 2,422 in 1948.

Any estimate of how many of the elderly and aged now in mental hospitals are suitable for other accommodation cannot escape the personal bias of the assessor, but figures taken from two different sources leave no doubt that an appreciable proportion is suitable for these lost beds and is of the type accommodated in them before the war.

4. The influence of social factors on the hospitalization of old people cannot be given in statistical form, but there is no doubt that many fewer families than before the war are now able or willing to care for their mentally or physically ailing old people in their homes. The main social factors are:

(a) *Lack of housing accommodation:* so many families are already over-crowded that it is impossible to give up a bedroom to a restless, talkative old person who has hitherto shared a room with another member of the family or has been living alone.

(b) *The increase in the number of women, and particularly of married women, now going out to work:* this is perhaps the most important social factor of all, for there are many senile patients in every mental hospital who could be discharged if there were a woman relative at home the greater part of the day.

(c) The stopping of all maintenance contributions under the N.H.S. Act, combined with the ever-rising cost of living, may well have made many families less willing to keep their aged relatives at home and more obdurate against having them back from a mental hospital. Unfortunately we cannot insist on their discharge unless they can be said to be "recovered".

(d) The decline in standards of family unity and of obligation to members of the family, together with the crumbling of the stigma of being admitted to a mental hospital have done much to produce the prevailing lack of social responsibility for elderly relatives. Waning religious influences and the modern trend of educational and political teaching are also important factors.

The foregoing analysis of some of the factors bearing on the overcrowding of mental hospitals with elderly patients has shown the position in a general way. A more detailed enquiry has been made in the case of admissions aged 65 and over to seven Borough or County mental hospitals, selected from rural and urban areas in both the north and south of the country.

For each hospital the figures for the male and female admissions were obtained, together with the deaths, discharges and numbers remaining after six weeks, six months, one year and two years. The figures were then examined both for the individual hospitals and collectively.

Admissions

These totalled 592, consisting of 199 males and 393 females, representing almost a twelfth of all admissions of patients aged 65 and over to former County and Borough mental hospitals during 1947. The highest number of admissions, 192, was to a hospital in a county with poor institutional accommodation, without female observation wards and with only 10 male observation beds for about 1½ million inhabitants. The lowest number of admissions, 25, was to a hospital in a large city with plentiful observation ward and chronic hospital facilities.

The Deaths

In seven hospitals for which the figures were examined the death rates varied between 5 per cent. and 25 per cent. of the admissions aged 65 and over in 6 weeks, 10 per cent. and 38 per cent. in 6 months, 12 per cent. and 42 per cent. in a year and 12 per cent. and 49 per cent. in two years after the patients entered hospital. From the figures it would seem that the hospitals in the series fall into two groups; three with about 5,500 beds in all, dealt with 392 of the admissions, the remaining 4 with over 7,000 beds had 200 admissions between them, suggesting that the latter four had more adequate observation ward or institutional facilities for the disposal of the patients. It was found that in 6 weeks, 6 months, 1 year and 2 years the first three hospitals had collective death rates of 22 per cent., 32·5 per cent., 38 per cent. and 44·5 per cent., whilst for the other four hospitals these were 8·5 per cent., 15·5 per cent., 18 per cent. and 26 per cent. It would, therefore, appear that there is a considerable difference in the number of deaths, if certain categories of patients are sorted out prior to admission.

Taking all the figures together, of the 592 admissions, 103 (17·4 per cent.) died in 6 weeks, 159 (26·9 per cent.) in 6 months, 186 (31·4 per cent.) in one year, and 225 (38 per cent.) within two years of their entry into hospital.

The Discharges

In the case of the discharges there was a much closer agreement between the first group of 3 hospitals, and the second of 4. The figures for discharges were for the group of 3 hospitals (392 admissions) and 4 hospitals (200 admissions), respectively, as follows: 37 (9·5 per cent.) and 15 (7·5 per cent.) after 6 weeks, 123 (31·5 per cent.) and 69 (34·5 per cent.) after 6 months, 147 (37·5 per cent.) and 85 (42·5 per cent.) in one year and 156 (40 per cent.) in two years after admission, though it seems throughout that those hospitals admitting a proportionately smaller number of elderly patients have been able to select those of better prognosis. The only exception in the figures is for the first 6 weeks, and the difference in numbers is consistent with a sampling error of no statistical significance.

For the whole of the hospitals collectively the discharge rate is 10·1 per cent. of the admissions during the first 6 weeks, but it rises rapidly to become 32·5 per cent. in the first 6 months, then comparatively slowly to 39·2 per cent. in a year and 42 per cent. in two years. The discharge rate is unexpectedly high if judged on the somewhat pessimistic standard so often assumed towards elderly admissions.

(4) Memoranda on which Recommendations are Based

1. We propose to formulate our recommendations on the framework of M. of H. Circulars H.M.C.(50)25 and (50)38 and the B.M.A. Special Committee Report on "The Care and Treatment of the Elderly and Infirm" (1947).

2. H.M.C.(50)38, entitled "Treatment of the Elderly Chronic Sick", suggests the principles on which a hospital geriatric service should be developed, and recognizes convalescent and long-stay annexes for the elderly sick no longer in need of active hospital treatment. It suggests that this accommodation might be in a separate part of a larger hospital, in special hospitals, or in annexes or homes linked with an acute hospital. Admission should be only by way of the acute hospitals, and the nursing staff should be linked with the acute hospital to allow for a rotation of staff and minimize the difficulty in obtaining nurses for chronic cases.

3. H.M.C.(50)25 on "The Care of the Aged Suffering from Mental Infirmity" contemplates the provision of:

(a) Short-stay psychiatric units.
(b) Long-stay annexes.

The short-stay psychiatric unit is envisaged as a small observation and investigation unit (not above 25 beds usually) developing as a part of the main geriatric department which it is hoped to form in all the larger general hospital centres. The short-term unit is considered mainly as a sorting house in which patients should not be kept more than 6 weeks. During this period some may have died, some may become fit to go home, a few may require mental hospital care, and the rest will be transferred to the long-stay annexes. (Some may be found suitable for accommodation under Part III of the National Assistance Act.)

In this circular the long-stay annexes are recommended for patients without marked behaviour disorder, and might be grouped either with Mental Hospitals or General Hospitals or Hospitals for the Chronic Sick. They should not in any case be a part of a mental hospital, and of course, the patients would be under no kind of Certification or Order. Medical care should be supervised by a Psychiatric Consultant.

Admission to the long-stay units would be from the short-stay unit, and perhaps also from mental hospitals, observation wards under Section 20 of the Lunacy Act, or direct from home. It is suggested that unused buildings on mental hospital estates, ex-public assistance institutions or larger houses might be used. The problem of obtaining nurses for the long-stay units is not touched upon in H.M.C.(50)25 although it is laid down that the staff should include mental nurses. The Report of the Mental Health Standing Advisory Committee (SAC(MH)(49)14), however, on which the H.M.C. is based, specifically recommended that the annexes should be grouped with mental hospitals and that the nursing staff should be derived from the linked mental hospital.

4. These recommendations are partly based on the B.M.A. Committee Report (referred to above) and agree with it in broad plan. The chief differences are: (a) The Ministry Circular applies its recommendations to patients aged 65 years and over, whereas the B.M.A. Report envisages a Geriatric Service for patients over 60 years of age. (b) The B.M.A. Committee proposes that the long-stay annexes should be in effect an extension of the geriatric department, and the patients should be admitted to them from no other source. The Ministry Circular allows admission of patients from other sources, and, in fact, the Mental Health Standing Advisory Committee (SAC(MH)(49)14) puts forward cogent arguments for admission in some instances from mental hospitals or direct from home.

(5) Recommendations of this Committee

The recommendations of the B.M.A. Committee and the Ministry of Health are not immediately practicable because they involve (a) the erection of new buildings and/or the purchase, major adaptation or re-instatement of existing accommodation, and (b) the provision of more and more psychiatric nurses; these measures are prohibited at present by the economic and labour situation, and any prospect of early improvement in either looks far from hopeful. We shall therefore follow our long-term suggestions with a few more immediately practicable recommendations.

For the purposes of this investigation we have regarded geriatric patients as those aged 65 years or over, in part because 65 years is one of the Age-Group limits in the Board of Control Returns, and many of our figures have been obtained from this source. In practice there is no overriding reason to make a definite age limitation; some patients are suitable for a geriatric unit at 45, while others at 75 suffer from acute mental disorders essentially suitable for treatment in a mental hospital.

Long-Term Recommendations

We agree with the main conclusions of the B.M.A. Committee and the Ministry of Health, that short-stay and long-stay units should ultimately be provided.

Short-stay Units

We consider that short-stay units should be an integral part of a General Hospital and of its Geriatric Department. They should be administered by the Group Hospital Management Committee, visited by a Consultant Psychiatrist and nursed by the ordinary nursing staff of the General Hospital, with a doubly-trained Sister in Charge, and preferably one or more (according to size) mental-trained nurse in support.

The unit should have small wards with adequate single-room accommodation. It should admit patients from the Main Hospital and from the Geriatric Department, and direct from their homes. Patients obviously requiring mental hospital care should be admitted, as at present, direct to an observation unit or mental hospital. The size of the unit will depend not only on the population of its catchment area, but on the proportion of patients aged 65 years or over suffering from recoverable mental disorder or for other reasons considered suitable for direct admission to a mental hospital.

Disturbed behaviour alone should not be a bar to admission, as many old people settle down within a few days with skilled medical and nursing care.

We have considered whether the suggested maximum period of 6 weeks is the most desirable period for patients to stay in those units and have come to the following conclusion:

If the function of the observation wards is to retain the patients for the period in which the greatest number of deaths will occur in the shortest time, probably six weeks or less is the time of choice. This would have the advantage of lowering the mortality rate amongst those admitted to mental hospitals or long-stay geriatric units. It would, however, have the disadvantage that most of the recoverable patients would have to be moved twice, which is never well tolerated in the elderly, and that they might have to go farther from home where less frequent visiting would be possible.

If, on the other hand, it is intended that most of the patients who are recoverable should also be discharged from the same units, then six weeks is too short a time for them to stay. For this purpose the optimum length of stay is between 6 weeks and 6 months, probably 3 or 4 months. A shorter period will save cost, while a longer period will lead to more discharges from the short-stay unit.

Long-stay Units

Administration and Staffing. We consider that the long-stay unit should be administered and nursed from a General Hospital Group, but should be under the clinical supervision of a Consultant Psychiatrist and preferably should have a doubly-trained sister in charge. Its junior nurses should be those of the General Hospital, with perhaps a greater proportion of Assistant Nurses or Ward Orderlies than in the acute wards. Student Nurses should serve in rotation a short training period in it. We do not consider it feasible or desirable to provide the nursing staff for these units from mental hospitals; the units should rather be attached to Teaching Hospitals (with which the main Geriatric Departments will presumably be linked) or to General Hospital Groups with flourishing nurse-training schools. Only by this means are sufficient nurses likely to be obtained to make the scheme practicable (see H.M.C.(50)38). In this same connection we strongly endorse the view expressed in SAC(MH)49(14) that the Standing Nursing Advisory Committee should be asked to consider the desirability of including geriatric instruction in nurse training.

Type of accommodation. There is much to be said in favour of fairly large units (200 beds and over):

1. They can provide better facilities for entertainment (cinema and shows), recreation and occupational therapy.
2. They are more economical.
3. Administration and provision of medical consultants, psychiatric social workers, physiotherapists, occupational therapists, etc., are likely to be facilitated. Homeliness can be ensured by having small dormitories and sitting-rooms and the unit should be divided into ambulant and sick divisions. An adequate number of single rooms should be provided for patients who are (a) talkative at night, or snore loudly or tend to be mildly restless, (b) suffering from mild infections, or (c) under observation for infectious diseases, e.g. tuberculosis.

Type of patient. Long-stay units should house elderly and senile patients suffering from mental deterioration of too great a degree for care in Part III N.A. Act accommodation. In the main they will be somewhat amnesic and confused, but not chronically noisy or disturbing to others. Occasional bouts of irritability, restlessness or talkativeness should not be a bar, nor should physical deterioration requiring confinement to bed.

Sources of admission. Patients should be admitted mainly from short-stay units, but also direct from their homes, from Mental Hospitals, and from other Hospitals and Institutions, including observation units with the approval of the Consultant Psychiatrist supervising the unit. We do not agree with the conclusions of the B.M.A. Committee that all patients *must* first go through the short-stay unit.

(6) IMMEDIATE STEPS

Finally we make the following suggestions with a view to trying to alleviate the present burden, pending the implementing of more permanent schemes:

1. In order to reduce admissions of senile patients to hospitals and institutions:
    (a) General Practitioners should be advised in the general care of the aged and in particular in the more practical use of sedatives, especially at night. This could be done by means of domiciliary visits, the appointment of more geriatric Medical Officers, Ministry of Health pamphlets, discussions at local B.M.A. Meetings, training of medical students in geriatrics, etc.
    (b) More use should be made of psychiatric social workers and other welfare officers in persuading families to look after their own kin, in making arrangements

for them to do so with the least possible disarrangement of their life, and in educating them in their responsibilities.

(c) More practical use should be made of Health Visitors, District Nurses and Home Helps. This could be done provided there is genuine co-operation between the local Authority and the Social Worker or Geriatric Medical Officer. Geriatric Medical Officers can be very helpful in preventing unnecessary admissions to mental hospitals, in educating General Practitioners in the management and disposal of senile patients and in saving many domiciliary visits and telephone consultations.

(d) Social Clubs for elderly people, sometimes called "Darby and Joan Clubs", have proved very successful in alleviating the loneliness and boredom, which so often precipitate mental breakdown in old people. The formation of these Clubs should be encouraged, and at least partly financed by Local Authorities. No doubt such voluntary bodies as the W.V.S. would give willing and valuable help in day-to-day administration, while the services of psychiatric social workers and occupational therapists would be of the greatest benefit.

2. Hospital or Institution wards closed for lack of nurses should be attached to Teaching Hospitals (or other hospitals which are well off for nurses) and re-opened for geriatric purposes, the nursing staff being provided by the linked hospital.

3. It should be heavily stressed that units for geriatric patients (whether physically or mentally affected) should be an integral part of the main hospital, and that it should be a part of the General Nurses' ordinary duties to be posted there in their turn. The need for this in regard to the General Hospital Geriatric Services has been recognized by the Ministry H.M.C.(50)38.

4. As suggested by the Standing Ministry of Health Advisory Committee, geriatric nursing should have an official place in a nurse's general training, and all student nurses should spend part of their training in a geriatric unit. This alone can upgrade the nursing of geriatric patients in a manner so greatly needed.

5. The maximum number of beds possible should be put up in old peoples' wards, even though it will cause overcrowding. The arguments against this are: (a) that it is a retrogressive step; (b) that the nurses would be overworked and would resign or become ill; (c) that the patients would be less comfortable and more prone to infections.

As to (a) we must be practical and temper our remedies to the gravity of the disease; (b) it is more economical both in nursing power and money to treat, say, 60 patients in two wards than the same number in three wards; and (c) we are forced to overcrowd in the mental hospitals, and senile patients have proved to be the least affected by this; they are less sensitive to infective illness, even feverish colds, and owing to their interests being so much narrower their conduct and comfort are minimally affected. This final recommendation must not be misinterpreted to suggest that we advocate a lower standard of care or comfort for the elderly. Companionship, comfort, kindliness and patient understanding are, if anything, more essential to the elderly, who have, so often, outlived most of their relatives and friends, than to young people, and should be the keynote of all geriatric planning.

Reviews

The African Mind in Health and Disease. By J. C. Carothers. Published by World Health Organization, Geneva, 1953. Pp. 177.

The World Health Organization Monographs are already well known for the high standard that they set and Dr. Carothers' Study in Ethnopsychiatry is no exception. The author is well qualified, having been born himself in South Africa and then spent 25 years in the Colonial Medical Services in Kenya. To collect the information for this particular monograph, he travelled widely in Africa, Europe and the United States.

A great deal of material covering the physical background of the African, is compressed into the first 55 pages, race, climate, common infections, diseases, nutritional and cultural factors, are all dealt with. Then there are 11 pages on the diseases most likely to affect African psychology. The next section deals with the African brain and its functions, with especial stress placed on Vint's work which showed that there was no great variation in cortical cell counts in the brains of Africans and Europeans but that many of the cells in the African were immature cells and it was "impossible to say how many would mature under conditions of life and education different from those that normally obtain today".

Dr. Carothers then surveys the normal psychology of the African with reference to temperament, intelligence, aptitudes and total personality. Rather surprisingly, no reference is made to the wartime work of the Army Directorate of Selection of Personnel, who examined many hundreds of Africans prior to enlistment. This chapter ends with the author quoting a previous work of his in which the main differences between Africans and Europeans are summarized as follows: the African "failed to see an event as an element in a total situation and as having a variety of relevant relationships. Secondly, a continual tendency to follow routine procedures in an unreasoning fashion. Thirdly, a lack of interest and tension unless the situation appears in a strictly personal and emotional fashion." Elsewhere in the chapter, it is suggested that in many ways the African resembles a European 8 or 9 year old child in his reaction to his environment.

The next chapter, entitled "Psychology in Relation to Environment", is an important one. At first the author comes down on the side of nurture, feeling that the African culture fails to provide the African child with the environmental stimuli of the type required to develop that form of psychological synthesis which the European considers more advanced. Having, however, given with one hand, he withdraws with the other, as the last section of this chapter deals with malnutrition and disease and he indicates that malnutrition, particularly kwashiorkor, could, in fact, account for most of the symptoms if one accepts that malnutrition may have interfered with neurone formation in the foetus.

Then comes the study of the American negro, prominence being given to the work of Klineberg who felt that the differences found in qualitative tests for intelligence and traits of personality were best explained in terms of factors in the social and educational environment.

The psychoses and psychoneuroses of the Africans are then described with special mention being made of the "frenzied anxiety" which Tooth, Dembovitz and Aubin have all also noted. To explain this, the author quotes a previous article in which he compared much of the behaviour of the African to a leucotomized European "the African with his lack of total synthesis must therefore use his frontal lobes but little and all the peculiarities of African psychiatry can be envisaged in terms of frontal idleness".

The final chapter deals with evolution and culture and the author sums up in favour of the view that the brains of Africans are potentially the equivalent of those of Europeans but that malnutrition and cultural factors prevent the African from developing along lines regarded as satisfactory by the average European. Frankly, your reviewer finds this the less satisfactory of the two hypotheses and it really hinges on the reliability of Vint's work, (*a*) are the total cell counts of African and European brains identical? (*b*) does the African's cell count contain a large proportion of immature cells? An alternative hypothesis would be that the frontal lobes of the African are less developed than those of the European and that therefore the average African brain cannot develop in the same way as does that of the average European.

R. F. Barbour.

Group Work With the Aged. By Susan H. Kubie and Gertrude Landau. Published by International Universities Press, Inc., New York, 1953. Pp. 214. Price $3.50.

An extremely interesting book that might well be compulsory reading for anyone concerned with geriatrics. It records vividly the inter-personal relationships of a group whose average age was 71·8 years and shows how much can be done to help such a group. Although writing about the aged in an American Recreation Centre, the situations described are so universal that anyone concerned with social groups would find this book profitable reading. R. F. Barbour.

Muscle Relaxation as an aid to Psychotherapy. By Gerald Garmany. (Physical Medicine Series. Vol. 1.) Published by Actinic Press, London, 1952. Pp. 65. Price 5*s*. 6*d*.

On the Continent, methods of body control (autogenesis) are regularly taught to patients suffering from psychosomatic states and anxiety reactions. It is a form of treatment less frequently used in this country and this book is a useful reminder that tension states give rise to secondary body changes which can be dealt with directly by a competent physiotherapist. R. F. Barbour.

Human Nature. Its Development, Variations and Assessment. By John C. Raven. Published by H. K. Lewis & Co. Ltd., London, 1952. Pp. 226. Price 12*s*. 6*d*.

Sets of lectures given to different types of audiences, then modified and combined to form a book, seldom make for an orderly and even development of themes. This book suffers in this way. Its chief assets are the avoidance in the main text of technical terms which are, however, adequately defined in the glossary, and the humanistic standpoint from which it is written.

The book would be of interest to nurses, welfare workers of good intelligence who, while not studying for examinations, yet wish to learn something about human conduct. R. F. Barbour.

The Concept of Schizophrenia. By W. F. McAuley. Published by John Wright & Sons Ltd., Bristol, 1953. Pp. 145.

More than a chapter, less than a volume, a very reasonable account of the present uncertainties regarding Schizophrenia. The author surveys the various theories regarding aetiology and treatment leaning himself towards the Meyerian standpoint. He favours no special line of treatment but would employ anything which will help an individual to "adjust to his social environment". R. F. Barbour.

Psychology, The Nurse and the Patient. By Doris M. Odlum. *Nursing Mirror*, London, 1952. Pp. 114. Price 7*s*. 6*d*.

An excellent book, easy to read, with few technical terms. One missed in the early chapters any discussion of standards or conscience and reference to these would have rounded off a straightforward, commonsense account of the psychological make-up of an ordinary individual.

The second part dealing more particularly with nursing problems, is the better for being written by a woman who has picked out just that small detail that makes the difference to the average patient. The chapters on the hospital and the patients, and the out-patients, might be read with advantage by all administrators, senior doctors and sisters. The chapter entitled "Some Special Problems in Nursing" envisages a degree of consultation between doctors and nurses about their patients which is by no means always found.

The book can be confidently recommended to the nursing profession and to all those responsible for hospital administration.

R. F. BARBOUR.

The Science of Mind and Brain. By J. S. WILKIE. Hutchinson's University Library, London, 1953. Pp. 160. Price 8*s*. 6*d*.

This book is a simple, though not too lucid, account of attempts to integrate the recent discoveries in the fields of psychology and neurology.

On the one side the problems of sense data and symbols and how things are recognized, on the other, the work of Lashley, Penfield and Rasmussen on localization.

The final chapter on integration deals chiefly with the shortcomings of all present theories and ends up on a note of agnosticism. "The final integrations of the neuro-mental system may take place according to laws which are unique, and it is possible we shall never know them otherwise than by the psychological methods of introspection and behavioural studies."

R. F. BARBOUR.

The Deprived and the Privileged. By B. M. SPINLEY. Routledge & Kegan Paul, London, 1953. Pp. 208. Price 18*s*.

In this book an educational psychologist sets out to show that in a London slum area and in three public schools there can be clearly differentiated "sub-cultures". Further, that despite their differences, yet in both there can be shown to be a basic personality type. The Rorschach tests of the school children in each group are strictly comparable but, to prove her other hypotheses, the author has to use facts collected in widely varying manners. Subjective impressions gained when living in a settlement, are compared with questionnaires completed by ex-public school students whose findings are cross-checked by social workers and by the methods of infant training advised at a certain nursery nurses' training centre.

The study of English sub-cultural groups is only just beginning and this book, easy to read, would be of interest to anyone acquainted with the social patterns of either of these groups and illustrates many of the difficulties that arise in this field of research.

R. F. BARBOUR.

A Manual of Psychiatry. By K. R. STALLWORTHY. N. M. Peryer Ltd., New Zealand, 1953. Pp. 314. Price 30*s*.

This book would chiefly be of use to nurses and medical students in New Zealand who wish to learn about the psychoses. It is clearly written. While treatment of the psychotic is dealt with in detail, the topics in the chapters on Mental Hygiene, and Abnormal Psychology, are dealt with superficially and haphazardly. Little mention is made of treatment of the neuroses, while, in order to discover the author's views on the principles of psychotherapy, one has to look in the chapter entitled "Certification and Other Matters".

The references to legal aspects would only be of use to anyone practising in New Zealand.

R. F. BARBOUR.

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* A number of abstracts in this section are reproduced from *Chemical Abstracts*. To the Editors of this Journal we extend our grateful thanks.

Isoniazid in Treatment of the Chronic Schizophrenic Patient

In order to determine the usefulness of isoniazid in the treatment of the chronic schizophrenic patient, the present investigation was undertaken.

Sixty chronic schizophrenic patients of comparable age, and duration and severity of illness were randomly assigned to two groups, one of which received isoniazid for 90 days and the other received a placebo for the same period. Subjects of the experimental group were randomly assigned to two groups, one of which received 50 mg. of isoniazid t.i.d., and the other 100 mg. t.i.d. Ward procedure was identical for all patients. The behavior of all subjects was rated with a modification of the Gardner Behavior Chart before, at weekly intervals during, at the termination of treatment, and two months after cessation of treatment by three independent observers—the ward charge nurse, the ward charge aide, and the chief of hospital industries. Studies on the isoniazid group included C. B. C., BUN, urinalysis, evaluation of liver function, and electroencephalograms before, during, and after treatment. Eosinophile counts were taken, and psychiatric and neurological examinations were performed on all subjects before, during, and after treatment. Psychological studies consisted of select subtests of the Wechsler-Bellevue Adult Intelligence Scale Form 1, Rorschach Psychodiagnostics, Human Figure Drawing, and a newly devised test which considers an individual's conceptualization of the internal body organization. (Authors' Abstr.)

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Effect of Amobarbital (Amytal) and Affect on Conceptual Thinking in Schizophrenia, Depression and Neurosis

1. Schizophrenic patients show impairment in conceptual thinking relative to depressive and neurotic patients. In view of the wide overlap in scores among the groups, it is doubtful whether measures of conceptual thinking can be used as reliable diagnostic indices.

2. Conceptual thinking in schizophrenia is resistant to change, so that neither affective stimuli nor drugs alone can modify it. Further impairment occurs only when the two are presented simultaneously. Under the conditions of this experiment it appears that in schizophrenia the effects of the drugs on conceptual thinking depend specifically on the presence of affective stimuli.

3. Conceptual thinking in depression is relatively adequate in quality under neutral testing conditions, but is easily impaired by affective stimuli or drugs. The impairment seems related to the increased prominence of affective preoccupations.

4. The thinking of neurotic patients appears constricted in neutral situations. The introduction of affective stimuli does not impair their conceptual thinking. Drugs apparently lessen their constriction and facilitate conceptual thinking in neutral situations, but disrupt their thinking in affective situations. (Authors' Abstr.)

Incidence of Idiopathic Convulsions in Later Life

Data are presented to reemphasize that the onset of convulsions in later life is not presumptive evidence of organic brain disease and that the incidence of such phenomena in persons of more mature years without demonstrable pathology is by no means uncommon.
(Author's Abstr.)

Succinylcholine Chloride in Electroshock Therapy

Electrocardiographic tracings and blood pressure recordings were taken on 215 patients undergoing electroshock therapy.

Electrocardiographic arrhythmias were revealed by 2·6 to 8·7 per cent. of patients prior to treatment. Electroshock without drug therapy was followed by cardiac arrhythmias in 32·5 per cent. of patients; moderate tachycardia was initially induced, to be supplanted by bradycardia. Nodal rhythms, sinus tachycardias, and ventricular extrasystoles were the commonest arrhythmias observed. The systolic blood pressure increased sharply immediately after the electroshock and was associated with the tachycardia; patients who developed a bradycardia frequently had an associated decrease in blood pressure below control values. These secondary changes appear to be a function of the aortic depressor reflex.

Thiopental (Pentothal) sodium induced a transient hypotension with little effect on pulse rate, although 16·1 to 17·5 per cent. of patients developed arrhythmias. After electroshock the blood pressure and pulse rate were transiently elevated, to be replaced at times with bradycardia and hypotension; 34·2 per cent. of patients had abnormal cardiac rhythms.

Succinylcholine chloride administration appeared to induce a mild increase in pulse rate and systolic and diastolic blood pressure. An incidence of 10·5 to 21·5 per cent. of cardiac arrhythmias was recorded. After electroshock a fairly marked rise in blood pressure and pulse rate occurred. This was followed in some patients by a marked fall in blood pressure associated with a bradycardia. An increased incidence of postshock cardiac arrhythmias was recorded in the patients treated with succinylcholine. Pretreatment with thiopental, and particularly with adequate amounts of atropine, reduced this incidence below that of patients receiving no drugs. On this basis, it is concluded that most of these arrhythmias are of vagal origin.

Since adequate pretreatment atropinization largely prevented postshock reflex bradycardia, hypotension, and abnormal cardiac rhythms, this measure is recommended. While the authors formerly prescribed 0·4 to 0·6 mg. twice that amount appears to be required for adequate prophylaxis.

Blood oxygenation and circulation, as noted by skin and fingernail color and capillary-refill time, remained excellent in all patients treated with thiopental sodium and succinylcholine chloride. This is in contrast to the condition in patients treated with unmodified electroshock, who frequently show a very intense cyanosis. In the entire series of patients treated with succinylcholine chloride, detrimental effects on cardiac status were not observed in any patient after treatment. The mortality rate was zero.

The authors feel very strongly that physicians using hypnotic and muscle-relaxant drugs should have adequate knowledge of the principles of resuscitation. Cooperation between the members of the psychiatric and the anesthetic departments is of benefit to the patient.

(Authors' Abstr.)

Electric Shock Treatment and the Menstrual Cycle

Introduction of electroconvulsive therapy into a menstrual cycle either shortened the menstrual cycle or unduly lengthened the cycle, thus causing temporary amenorrhea.

The averages of the first cycle during shock treatment increased but little up to the 10th treatment, when a sudden rise to a higher level occurred.

The averages of all menstrual cycles during ECT were significantly related to the number of treatments given.

The effect of a series of shock treatments was cumulative. Increasing numbers of shock treatments caused increasing delay in resumption of menstruation after treatment.

The amenorrhea-producing properties of ECT were enhanced by combined subcoma or coma insulin treatment.

The data were intrepreted as indicating that either diminution or increase of pituitary gonadotropic function may occur during ECT, the prevalent mode of action being diminution.

(Author's Abstr.)

Serial Administration of the "Amytal Test" for Brain Disease

Thirty-four patients were given the amobarbital test ("Amytal test") for brain disease serially at different stages of their illness.

A method of quantifying the test data is proposed. It was found that the results of the test paralleled improvement or deterioration of brain function as indicated by other methods of study.

The serial use of the amobarbital procedure should be of particular value in the study of patients with brain disease, with changes in behavior and in conditions in which the alterations of brain function are poorly understood, as after electric shock treatment.

It is concluded that the test is a valid method of indicating a present degree of alteration of brain function, change from a previous level of functioning, and of prognosticating the subsequent course.

(Authors' Abstr.)

Chlorpromazine

Chlorpromazine is a new phenothiazine derivative related to certain antihistaminic agents. It has pronounced effects on the central nervous system. In animals, it produces a type of depression which increases progressively with the dose, has strong antiemetic properties, inhibits the secretion of gastric juice, and produces hypothermia.

In man it potentiates the effects of cerebral depressants, lowers the blood pressure, and accelerates heart action. It produces motor retardation, somnolence, and weakness. Allergic reactions occur infrequently. Reversible impairment of liver function may be observed if the drug is used in large doses over extended periods of time.

The lethargy resulting from the drug in contrast to other sedatives is characterized by clarity of consciousness and retained responsiveness, which has been demonstrated by experimental psychological methods. Chlorpromazine, at any dosage, does not produce emotional disinhibition but selectively inhibits drive, which makes it unique among the more powerful sedatives.

In this study chlorpromazine was not used in combination with other sedatives. Doses vary considerably with the individual subject and range from 50 to 800 mg. per day. Prolonged administration requires nursing and medical supervision.

Seventy-one psychiatric patients, ranging in age from 18 to 82 years, were treated over a four-month period. The drug has proved to be of unique value in the symptomatic control of most types of severe psychomotor excitement. Impressive therapeutic results were obtained in acute and chronic manic-depressive patients in the manic phase. Attacks are significantly shortened. Relapses are less frequent than with E.C.T.

Selective inhibition therapy with chlorpromazine is compared with two other standard treatments for manic conditions, i.e. E.C.T. and prolonged sleep. Little is known of the exact mode of action of the drug. A possible mechanism involving acetylcholine metabolism has been considered, and, on the basis of clinical evidence available, the reticular activating system in the brain stem is proposed as the site of action. (Authors' Abstr.)

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Photo-Metrazol Activation in Children

1. A technique of performing photo-Metrazol threshold determinations in children is described. This test is thought to reflect levels of diencephalic function or damage.

2. By statistical analyses, the photo-Metrazol triazol threshold is a reliable (repeatable) test.

3. The threshold could not be obtained in conditions of chemically induced sleep.

4. Using the technique as described, in children from 6 years 8 months to 11 years 10 months the range of thresholds may be tentatively given as follows:

Normal: 6·5 and over.
Borderline abnormal: 5·1 to 6·4.
Abnormal: less than 5·1. (Authors' Abstr.)

The Metrazol-Flicker Threshold in Neuro-Psychiatric Patients

1. The Metrazol-flicker threshold has been investigated in 124 neuro-psychiatric patients using a modification of Gastaut's method.

2. Catatonic schizophrenics and idiopathic epileptics tend to have low thresholds. An explanation is suggested.

3. There appears to be no single typical response in the EEG when the threshold is reached.

4. The test gives information of little or no diagnostic value.

5. It may be useful in measuring the tendency of certain neuronal systems to discharge, thereby throwing light on various as yet unexplored neuro-physiological mechanisms. (Authors' Abstr.)

Pathways of Non-Specific Thalamo-Cortical Projection System

1. The pathways of the non-specific thalamo-cortical projection system, in the cat, are independent of the specific thalamic nuclei and the striatum.

2. The non-specific pathways pass forward to the oral pole of the thalamus where there is a topographical organization, with the ventro-medial portion related to anterior and the dorso-lateral portion to posterior cortical responses.

3. The final neurons in this multi-synaptic thalamic pathway probably lie in the nucleus reticularis and pass in a topographical manner through the internal capsule directly to various cortical areas.

4. Transcortical transmission was not found to be an important factor in the distribution of non-specific thalamo-cortical responses. (Authors' Abstr.)

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The Form and Structure of the Human Claustrum

The claustrum is divisible macroscopically into a dorsal (compact) and a ventral (fragmented) part, the latter composed of small islands of grey matter whose rostral prolongation forms the claustrum parvum. The dorsal and ventral claustrum are closely similar histologically and are considered to form a homogeneous structure. The claustrum extends beyond the traditional limits of the insula.

The region between lateral border of putamen and insular cortex is constituted by a complex fibro-cellular reticulum, the central part of which represents the macroscopic dorsal claustrum. The claustral reticulum is interwoven with the fibers of the external and extreme capsules. The external capsule exchanges fibers with the putamen, the extreme capsule with the insular cortex. The origin and termination of these fibers could not be determined.

The claustral formation contains fusiform, ovoid, triangular and polygonal cells. The synaptic relationships of the cells to one another and to neighboring cell-masses could not be ascertained. The dorsal claustrum is not joined to neighboring structures by cellular bridges. Grey islands of the ventral claustrum adjoin the amygdaloid complex and temporal cortex. The cells scattered between the claustral islands and the amygdala and cortex could not be definitely allocated to one or other formation. (Author's Abstr.)

Human Thalamus. An Anatomical, Developmental and Pathological Study

With the exception of the anlage for the geniculate bodies, the mantle layer of the thalamus shows uniform cell distribution up to the period somewhere between 65 and 104 mm. C-R length; whereas the cell groupings in the other parts of the diencephalon were observed much earlier—in embryos of 17 mm. C-R length. The probable reason for the late differentiation of the thalamus may lie in its more recent acquirement in the phylogenetic scale.

The question of the derivation of some of the thalamic nuclei is a difficult one.

From the epithalamic mantle layer there develop habenular nuclei and probably the nucleus parataenialis.

From the thalamic mantle layer there develop: the nuclei anterior medialis, ventralis and dorsalis; the nucleus medialis dorsalis; the nucleus lateralis dorsalis, nucleus lateralis posterior and nucleus pulvinaris; the nuclei ventralis anterior, ventralis lateralis and ventralis posterior; the intralaminar nuclei; some of the medial and midline nuclei. Of the last group, the derivation of the paraventricular nucleus is not certain. It may originate from the cells of the epithalamic mantle layer, or from those of the thalamic mantle layer, or even from both of these.

The medial geniculate body and also the lateral dorsal geniculate body as a whole or in its largest part, are derived from the thalamic mantle layer. The ventral lateral geniculate body, as well as the nucleus reticularis, develop from the subthalamic mantle layer. It cannot be stated definitely whether the cells from the subthalamic anlage for the lateral geniculate body form only the ventral lateral geniculate body or also contribute to the formation of the dorsal lateral geniculate body.

The thalamic anlage for the medial geniculate body, and the thalamic and subthalamic anlage for the lateral geniculate bodies were first observed in an embryo of 29 mm. C-R length (about 8½ weeks).

The anlage for the reticular nucleus is laid down in the mantle layer of the subthalamus in the first half of the second stage; after its dorsal migration this anlage becomes the reticular nucleus and as such was observed in an embryo of 65 mm. C-R length.

In a baby born at term, subdivision of the intralaminar complex into most of the separate nuclei is possible. Of course, subdivision is aided greatly by topographic considerations.

Within the nucleus medialis dorsalis, the lateral mediocellular part and the medial magnocellular part may be observed.

The cells of the nucleus ventralis anterior are slightly larger than those of the nucleus ventralis lateralis, which in turn are slightly larger than those of the nucleus lateralis posterior; however, it is impossible here to delineate them.

No definite marked changes have been observed in the relative size of the thalamic nuclei in different developmental periods with the exception of the subthalamic component of the lateral geniculate body, which has already been discussed.

The growth and maturation of the nerve cells progress very slowly throughout intra-uterine life, and they are not complete even in babies born at term. According to Scammon ('23), the weight of the brain of an infant of two years has doubled and at 15 years of age, has tripled, that at birth. Increase in the size of the nerve elements as well as an increase of the mesenchymal structures combine to account for this.

Merely from a consideration of the time of the appearance of the separate cell collections, during their development and, from their further transformation during the course of intra-uterine life, some suggestion of the functional differences of the thalamic nuclei may be obtained.

Thus, the earlier demarcation of the nucleus ventralis posterior suggests a function different from that of the other ventrolateral nuclei.

A late differentiation of certain nuclei, occurring all at the same time, may signify also their functional relationship. This may be true of the anterior nuclei, as well as of the nucleus lateralis dorsalis, the lateralis posterior and the pulvinaris. (Author's Abstr.)

The Histochemical Localization of Cholinesterases in the Central Nervous System of the Rat

1. A histochemical survey of the rat brain for specific and non-specific ChE activity has been conducted.

2. The chief sites of non-specific ChE found included the cytoplasm of fibrous astrocytes and other gliocytes, the walls of capillaries, the smooth muscle fibers of the larger blood vessels and, in relatively low concentration, the cytoplasm of certain neurons.

3. Specific ChE activity was concentrated at the perikaryon membranes and along the axons and dendrites of numerous groups of neurons. In general, motoneurons exhibited high activity, whereas in neurons synapsing with motoneurons, directly or via internuncials, concentrations appeared to vary. The neurons of different correlation centers likewise exhibited extremes of high and low activity. The enzyme was present in low concentrations or absent in primary sensory neurons; most secondary afferent neurons exhibited moderate activity, and tertiary afferent neurons generally showed high or moderate activity.

4. Physiological implications of the present findings are discussed. (Author's Abstr.)

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A Clinical Evaluation of Mesantoin in Epilepsy

Mesantoin therapy, given to 40 patients with convulsive states of long duration and inadequately controlled by other therapy, effected considerable improvement. Thirty-seven per cent. were free of attacks for periods of three to 18 months, and 40 per cent. had a considerable reduction in frequency of attacks; a total of 77 per cent. were improved. On the other hand, 18 per cent. had no or only slight reduction in frequency, and 5 per cent. were worse while under therapy.

Gum hypertrophy caused by dilantin disappeared in 2 persons when mesantoin was substituted for dilantin, as did a severe prolonged ataxia in one case.

Toxic reactions occurred in half but were mild in most and many disappeared despite continued therapy. The potential danger of agranulocytic anemia is evident here, for one patient succumbed, the fourth reported case of this complication.

The results were obtained by substituting Mesantoin for dilantin in combination with other current therapy. No comparison of effectiveness in similar dose levels was attempted. In this drug we have another agent, which is most effectual in motor seizures, that must be employed with full realization of its toxic potentialities. (Authors' Abstr.)

An Electroencephalographic Survey of Mentally-Ill Epileptic Veterans

1. A survey of 1,850 patients in a neuropsychiatric V.A. Hospital indicates that 84 (4·5 per cent.) have convulsive or related disorders, such as fainting spells, attacks of dizziness, etc. Of the 84 patients, 75 (89 per cent.) were referred because of major seizures, whereas 9 (11 per cent.) complained of symptoms other than major seizures.

2. Of the 75 patients with major seizures, 47 (63 per cent.) showed some degree of abnormality in the EEG (26 abnormal, 21 mildly abnormal). Of the 9 patients with symptoms other than major seizures, 3 (33 per cent.) showed evidence of abnormality in the EEG (1 abnormal, 2 mildly abnormal).

3. In this group of 84 patients, 35 (42 per cent.) were diagnosed clinically as epilepsy (28 idiopathic, 7 traumatic). The remaining 49 patients (58 per cent.) carried miscellaneous neuropsychiatric diagnoses, both functional and organic.

4. In the entire group of 84 patients, 50 (60 per cent.) presented some degree of abnormality in the EEG (27 abnormal, 23 mildly abnormal). Specific EEG abnormalities are presented in correlation with the clinical diagnoses in these 50 cases.

5. Of the 35 patients diagnosed as epilepsy, 27 (77 per cent.) had some degree of EEG abnormality (16 abnormal, 11 mildly abnormal). In the group of 49 patients with other neuropsychiatric disorders and epileptic manifestations, 23 (46 per cent.) presented evidence of abnormality in the EEG (11 abnormal, 12 mildly abnormal).

6. The incidence of schizophrenic patients with convulsive or related disorders was found to be 1·1 per cent. or twice as high as encountered in the general population. Out of 16 patients with this diagnosis, 12 (75 per cent.) were found to have major seizures. Seven of the 16 patients (44 per cent.) presented some degree of abnormality in the EEG (3 abnormal, 4 mildly abnormal).

7. Out of 30 patients followed in an in-patient seizure clinic, approximately 50 per cent. have shown some degree of improvement. Seven patients are at present on trial visit from the hospital. (Author's Abstr.)

The Hyperventilating Type of Human Female

1. The hyperventilation syndrome is frequent in women, occurring in about 27 per cent. of the general female population.

2. It occurs about three times more frequently in women than in men.

3. The cause and core of the hyperventilation syndrome is anxiety. Usually only a part of this anxiety is "cathected" or bound by the hyperventilation habit. The part that is bound causes the variegated secondary physical symptoms described in the text of this report. The unbound fraction which, like the devil is certain to crop up sometime in the life of the hyperventilator, leads a peculiarly vicarious existence, causing sometimes mere annoyance and irritation to others, but at other times it has serious social consequences.

4. A good many hyperventilators constitute a serious problem to their families, to society in general, and to the medical profession. They are the innocent propagators and purveyors of neuroses and psychoses in others, of such social problems as alcoholism, adultery, and divorce, and of unscientific healing cults and systems and quackery in general. Because they can be annoying, the physician should not make the mistake of assigning them a nuisance value.

5. Most female hyperventilators go untreated by psychiatrists, first, because of the tendency of the symptoms to mask themselves in a myriad of physical forms, and, secondly, because of their relatively strong ego, their aversion to having the label "neurotic" pinned on them, and their propensity to project part of their anxiety on to the environment.

6. The hyperventilation syndrome of psychogenic origin is of three grades of severity, namely, mild, moderate, and severe. Thus far its cure is fundamentally psychotherapeutic. With a better attitude and a deeper understanding on the part of the medical profession, the prognosis of the hyperventilation syndrome can be influenced for the better even in the more severe cases.

7. In the past sixty years the medical profession and psychiatry have met and overcome the challenges of conversion hysteria in the female. Like the conversion hysterics the hyperventilators are more to be pitied than condemned. The hyperventilators constitute a new challenge to the medical profession. I am certain that we will accept the responsibility for their adequate care and that with sympathetic and intelligent handling we will help not only those afflicted with hyperventilation but society as well. (Author's Abstr.)

Schizoid

1. The following traits are characteristic of the schizoid personality, (a) Uncomfortable feelings of inadequacy, (b) A desire to withdraw from people, and (c) A tendency toward autistic and dereistic thinking. External behavior gives the appearance of different types because the affect may be dull or extremely excitable. However, it is almost always inappropriate. Sex life may be inactive or polymorphous and chaotic but hardly ever smooth-flowing.

2. This type of personality is more frequently found to be the one from which schizophrenia develops than any other.

3. The schizoid personality is developed out of the interplay of hereditary, constitutional, and environmental factors. The hereditary factor is merely a predisposition which may be overcome by environmental influences. (Author's Abstr.)

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Effects of ACTH on Mental Function

An attempt was made to determine if ACTH regularly produces striking, specific changes in mood and behavior, as has been reported by some observers. Special attention was directed toward controlling several factors which have complicated evaluation of previous studies. Among these variables are:

1. The presence of severe or chronic illness.
2. The patient's previous personality patterns.
3. Current environmental stress.
4. Attitudes of the investigators.

A group of 11 young male soldiers only mildly ill with acute hepatitis was chosen for investigation and subdivided into control and treatment groups. The pattern of distribution was kept secret from all observers. Periodic psychiatric observations were made before, during, and after the administration of the drug (or placebo).

Psychiatric observations revealed no gross intellectual, affective, or behavioral changes; controls could not be differentiated from patients getting the drug. A battery of psychologic tests was administered during the base-line period and repeated during the course of the drug administration. The psychologic test results did not demonstrate any sharp distinctions between the two groups, either before or after the initiation of treatment. Over-all level of intelligence, patterns of frustration-aggression, and imaginative responses to projective tests remained largely unchanged for both groups. Such fluctuations in test scores and performance as were observed were minor in nature and occurred with equal frequency in the two groups.

It is concluded that major psychologic changes need not invariably occur with the use of ACTH. It is believed that such changes are probably rare in patients who do not have chronic, severe illness either physical or mental.

Although this is a small sample, the strikingly uniform lack of major psychologic changes suggests that the central pharmacologic action of ACTH on the central nervous system (as shown by EEG evidence) has no *specific* effect on mood and behavior when administered in the usual clinical dosages. It is further postulated that the variables which this study attempted to minimize are probably among the chief factors responsible for the production of mental changes when they occur.

The advantages of close co-operation between psychiatrists and other medical specialists in the evaluation of therapeutic drugs and problems of rehabilitation are discussed.

(Authors' Abstr.)

Intravenous Sodium Iodide in the Treatment of Advanced Senile Psychosis and Arteriosclerotic Cerebrovascular Disease

Sodium iodide in the treatment of advanced senile psychoses and arteriosclerotic cerebrovascular disease resulted in no improvement in this series of 15 patients in the dosages given and in the number of treatments given. The 2 deaths in the authors' series made them hesitate to continue the treatments further by either enlarging the dosage of iodides or extending the number of treatments beyond ten. The fact that no improvement was noted in any of the 15 patients treated makes them doubt the efficacy of the use of sodium iodide in advanced senile or arteriosclerotic psychoses. (Authors' Abstr.)

NOVEMBER

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The Effect of 1-Isonicotynl 2-Isopropyl Hydrazide (Marsalid, Iproniazid, 11H) on the Behavior of Long-Term Mental Patients

1. Three groups of 30 female patients each were selected from a ward housing between 115 and 120 female patients. The three groups were matched for behavioral averages according to the L-M Fergus Falls Behavior Rating Scale and for body weight. One group received 11H (Marsalid), another group received identical placebos, and the third group received neither 11H nor placebos. The patients were rated once a week for a 24-week period.

2. The differences between the groups were never great enough to be of practical significance.

3. (a) In the behavioral area "attitude toward other patients" the drug group showed itself to be significantly superior to its pre-experimental level. (b) The untreated control group showed itself to be worse than it was before the experiment started in regard to psychomotor activity and speech. At certain times, especially in the period after the drug was removed, the drug group showed itself to be significantly worse in terms of psychomotor activity.

4. (a) The drug group showed numerous trends in practically all areas of behavior (and weight) superior to the other two groups during the 16 weeks the drug was administered. These trends are of theoretical and statistical significance as they indicate that something must be occurring as a result of the drug, although this "something" is not very much. After the drug was removed, the drug group showed no significant differences from the other two groups. (b) The untreated control group showed certain downward trends in most behavioral areas.

5. One must conclude that there is a certain small positive effect of the drug over and above that which could be attributable to either chance or to the effect of increased attention. The trends and changes observed existed only as long as the drug was being administered. One must also conclude that the untreated group showed a worsening of behavior that separates it in a minor way from both the placebo and the drug-treated groups.

6. The ward as a whole now requires less sedation, less EST, and less nursing attention to details of dress and toilet habits than it did before the experiment.

7. "Total Push" is far more effective than Iproniazid in the treatment of long-term mentally ill people.

8. Iproniazid used alone is not a "miracle cure" in the sense of bringing about major improvement in the long-term mentally ill which would make for their being better adjusted hospital citizens or for remission of their psychosis. Further research will be necessary to determine whether it is useful as an adjunct to other form of therapies. (Authors' Abstr.)

Electroencephalographic Studies in Posthypoglycemic Coma

1. Twelve cases of posthypoglycemic coma were studied by the EEG.

2. The comas varied in length from one to 20 hours.

3. In contrast to the routine treatment comas, the EEG in these cases showed persistent abnormality for many days after recovery from the coma.

4. There was a close correlation between the length of the coma, organic confusion, remission of mental symptoms, and the degree of abnormality in the EEG.

5. The EEG did not portend the posthypoglycemic coma.

6. The posthypoglycemic coma was not considered as an indication to terminate insulin treatment.

7. It is postulated that the posthypoglycemic coma is a convulsive phenomenon which leads to an iso-electric condition across the semipermeable membranes of the neurones. The iso-electric condition is felt to be a postictal exhaustion state resulting from an excessive electrical discharge of highly suppressed cells.

8. It is felt that interruption of coma could be brought about by the re-establishment of potentials across the membranes which would again permit cellular exchange of metabolites.

9. The administration of anticonvulsants during insulin therapy might in some instances function as a safeguard against posthypoglycemic coma.

10. Further investigation referable to the possibility of an iso-electric state is contemplated. (Authors' Abstr.)

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Effects of Small Lesions in Sensory Cortex in Trained Monkeys

1. Small lesions were made in the sensory cortex (areas 3, 1 and 2) of two Macaca mulatta and seven Macaca nemestrina monkeys. The latter were trained for tests of discrimination by palpation, dexterity and motor power.

2. The immediate and remote effects of the lesions are stated in quantitative terms by means of these tests. In all cases substantial, and in some complete, recovery was measured and recorded.

3. The results of the present study are compared and contrasted with previous work on the motor cortex (area 4). Lesions in either the motor or the sensory areas cause loss of motor power and dexterity. Those in areas 3, 1 and 2 do not cause inability to make movements but may cause initially unawareness of movements made and arrest of a limb in an unusual position. In all cases of post-central gyrus lesion a loss of tactile sensation occurs and before recovery this defect is compensated for by the greater use of visual cues.

4. Histological examination of the brains by the Marchi method showed very extensive fibre connections from areas 3, 1 and 2 into area 4 with the thalamus, but few fibres entering area 5. Descending fibres into the spinal cord were found and counted.

5. A correlation of function and anatomical data indicates that a most intimate connection exists between areas 3, 1 and 2 and area 4, and that these cortical areas form a unit essentially linked with the thalamus and spinal cord, but sending few fibres into areas more anterior and posterior. (Authors' Abstr.)

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Traumatic Epilepsy after Closed Head Injury

Two thousand cases of closed head injury were studied from the war-time records of the Military Hospital for Head Injuries, Oxford.

Five hundred of these were a relatively unselected group and the incidence of post-traumatic epilepsy was 6 per cent.

One hundred and ninety cases of traumatic epilepsy were considered in some detail.

Focal seizures developed earlier than did general seizures.

Cases with a long post-traumatic amnesia (P.T.A.) had a higher incidence of epilepsy, and the fits developed after a longer time-lag than occurred in cases with a short P.T.A.

Constitutional factors appeared to be relatively unimportant.

The possible significance of the varying interval at which fits develop is discussed from the point of view of the aetiological factors concerned in traumatic epilepsy.

(Author's Abstr.)

Frontal Lobe Wounds Causing Disinhibition

Six cases of penetrating brain wound are described in which disinhibition appeared after involvement of the frontal lobes. It has been shown that disinhibition is a separate disturbance of function which need not necessarily be associated with other disturbances described as part of the frontal lobe syndrome. In most cases the patients are aware of the change in their personality due to the disinhibition, but can only exert minimal control over the new behaviour pattern.

Disinhibition can appear when only one frontal lobe is involved, without any obvious anatomical correlation with any special site within the pre-frontal area, though, as has been pointed out, the extent of frontal lobe injury was severe in all these cases.

Disinhibition can coexist with a variety of affective experience and can occur without any associated intellectual impairment. Much destruction of frontal lobe tissue appears to be possible without producing intellectual loss in the conceptual sense.

The relation between the appearance of disinhibition and the pre-traumatic personality is described in full, and reasons are given to explain why disinhibition only occurs significantly in certain cases and involves different aspects of the personality in different people.

(Author's Abstr.)

Studies of the Connexions of the Fornix System

The connexions of the fornix system have been studied experimentally in the rat, rabbit and monkey by the method of retrograde cell degeneration. No cellular degeneration was found in the cells of the hippocampus after complete division of the fimbria or fornix.

These observations were consistent in animals of all ages and after survival periods varying from seven days to 10 months.

It is suggested that the absence of retrograde degeneration in the cells may be due to the rich system of recurrent collaterals derived from the proximal ends of the axons of the hippocampal pyramids.

Extensive fibre degeneration of the alveus occurs in the rat following lesions of the fornix system. From the distribution of this degeneration it appears that field CA_1 of the hippocampus is related to the dorsal fornix and the other fields to the fimbria.

Division of the fimbria results in complete atrophy or shrinkage of all the cells of the ipsilateral medial septal nucleus and partial degeneration of the nucleus of the diagonal band. Additional involvement of the dorsal fornix or stria terminalis in the rat did not affect the degree or distribution of this degeneration.

No retrograde degeneration was found in the nuclei of the pre-optic and hypothalamic areas.

Extensive destruction of the entorhinal cortex and amygdaloid nuclei was not accompanied by any degeneration in the septal nuclei.

Division of the stria terminalis did not lead to any cellular change in the amygdaloid nuclei. (Authors' Abstr.)

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Effects of Betatron Radiations on the Brain of Primates

1. The central nervous system is more radio-responsive than generally supposed.
2. The effects of high energy x-rays on the brain of monkey and man appear to be direct effects and are not secondary to vascular occlusion.
3. The brainstem appears to be most responsive to radiation.
4. The white matter of the deep portions of the centrum semiovale, internal capsules, and brainstem are peculiarly responsive to x-irradiation.
5. The cells of paraventricular and supraoptic nuclei of the hypothalamus are responsive to x-rays.
6. Comparable radiation responses are being observed in patients receiving x-ray therapy for tumors of the central nervous system. (Authors' Abstr.)

Agenesis of the Corpus Callosum

A study was made of 19 cases of agenesis of the corpus callosum, all but one of which were diagnosed during life. Two cases came to necropsy and confirmed the clinical (roentgen) diagnosis. Analysis of this material revealed the following:

1. Initial symptoms manifested by these 19 patients became apparent prior to three years of age in 89 per cent. of cases.
2. Initial symptoms were focal or Jacksonian seizures in 37 per cent. of cases, hydrocephalus in 31·5 per cent., and physical and mental retardation in 31·5 per cent.

3. Sixty-three per cent. of the entire group had verified major seizures sometime during their illness. Such seizures were focal or Jacksonian in 75 per cent. of cases.

4. Eighty per cent. of the 15 patients studied by standard psychometric technics were found to be mentally retarded or defective.

5. Forty-two per cent. of patients in this series were hydrocephalic.

6. It has been postulated that the high incidence of focal or Jacksonian seizures in patients with agenesis of the corpus callosum may be due to deficient neopallial commissural fibre systems which inhibit the spread of the seizure to the opposite hemisphere.

(Author's Abstr.)

Standardization of Face-Hand Test

A standardization of the face-hand test is presented. A positive face-hand test is designated as one in which errors persist after the tenth trial. Four classes of positive face-hand tests are recorded. A one-plus face-hand test consists of extinction only with touch stimuli. A two-plus response is characterized by extinction with pinprick and rubbing stimuli as well as with touch stimuli. A three-plus response consists of extinction and displacement with touch, rubbing, and pinprick stimuli. A four-plus response has all the characteristics of a three-plus response and in addition at least one of the following features: (a) exosomesthesia; (b) allesthesia; (c) perseveration of responses; (d) occurrence of errors even while the subject observes application of the stimuli. Three-plus and four-plus responses invariably indicate disease of the brain in subjects over the age of six years. One-plus and two-plus responses occur in patients with brain disease but are also manifested by a small number of normal adults and patients with psychogenic disorders. Patients with a four-plus response show the severest mental changes but the converse is not true. There is no correlation between the severity of the mental changes and the type of positive face-hand test manifested. Usefulness of this classification in the study of patients clinically and in experimental work is suggested.

(Authors' Abstr.)

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Observations on Organic Brain Damage and Clinical Improvement Following Protracted Insulin Coma

A study of eight cases of chronic schizophrenics who developed protracted coma during insulin shock therapy is reported. Five of the eight patients showed a marked improvement after protracted coma, and three remained unimproved. The improvement consisted of loss of tension and hostility. Patients became friendly, affable, relaxed and interested in the environment. In spite of the return of delusional systems, the improved patients were able to function on a higher level than previously. In four of the five improved patients, improvement was preceded by severe organic brain deficit of varied duration. The organic deficit was demonstrated through clinical observation, a battery of psychological tests and electro-encephalograms. Improvement is attributed to the organic brain damage which results in disruption of associative pathways not unlike the disruption in lobotomy. (Author's Abstr.)

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The Failure of Succinate to Alter the Metabolism of Ethyl Alcohol in Dogs and Rabbits

1. Castex and his co-workers have reported that intravenous administration of succinate will rapidly alleviate alcoholic depression and concurrently reduce the concentration of alcohol in the blood. Because of the practical and theoretical importance of such a finding the authors have investigated the same problem.

2. In their experiments neither single, repeated, nor continuous intravenous injections of succinate changed the rate of disappearance of alcohol from the blood of rabbits or dogs (the first stage of the metabolism of alcohol). No effect on the second stage of alcohol metabolism following the injection of succinate could be demonstrated by determinations of the blood concentrations of acetaldehyde, pyruvic acid or glucose.

3. It is suggested that incomplete distribution of alcohol in the body may account for the results obtained by Castex and his associates. (Authors' Abstr.)

Alcohol Breath Tests and Breath Deodorization by Chlorophyll Derivatives

1. The ingestion of 100 mg. of chlorophyllin is without effect on the concentration of alcohol occurring in the blood and the breath after the consumption of whisky.

2. The chewing of chlorophyllin-containing gum is without effect on the alcohol content of the breath following the consumption of beer.

3. Chlorophyllin does not interfere with the alcohol breath test.

4. The breath odor after drinking alcoholic beverages is due primarily to the presence of highly aromatic substances characteristic of each beverage. The reported deodorization of beer breath with chlorophyllin suggests that this substance neutralizes some of the characteristic aromatic substances present. (Authors' Abstr.)

Relation of Blood Acetaldehyde Level to Clinical Symptoms in the Disulfiram-Alcohol Reaction

Following the intake of about 50 ml. of absolute alcohol, the proportion of acetaldehyde in the blood of human subjects increases, and this is to some extent dependent on the dose of alcohol. Values between 0·590 and 1·700 mg. per 100 ml. of acetaldehyde were found.

With preceding administration of disulfiram (tetraethylthiuram disulfide) a higher acetaldehyde concentration is found in the blood after intake of alcohol. In subjects showing a clinical disulfiram-alcohol reaction, values between 0·639 and 2·510 mg. per 100 ml. of acetaldehyde were found in arterial blood.

Following the intake of alcohol only, the acetaldehyde concentration may reach values of the same order of magnitude as those seen in disulfiram-alcohol reactions but alcohol alone does not produce any signs of the reaction.

The proportion of acetaldehyde in the blood rises with increasing dosage of disulfiram but only up to about 4·5 g. of the compound during the 3 days preceding the test.

The grade of clinical reaction becomes more pronounced with increasing dosage of disulfiram but a medium reaction is released after the administration of a total of 1·5 to 2·0 g. during 3 days. (Author's Abstr.)

Effect of Alcohol on Respiration Before and After Treatment with Disulfiram

Study of ventilation in the course of the disulfiram-alcohol reaction has substantially confirmed previous investigations. Alcohol alone may either increase or reduce ventilation, whereas increased ventilations with a reduced carbon dioxide content in the expired air is regularly found in the course of the disulfiram-alcohol reaction. Inhalation of oxygen brings about a reduction of ventilation but produces no subjective improvement.

(Author's Abstr.)

1. Biochemistry, Physiology, Pathology, etc.

Nucleic Acids of the Cells of the Central Nervous System in X-ray Treated Animals. Poggiali, Adriano. [*Sistema Nervoso*, **4**, 547 (1952).]

In x-ray irradiated rabbits (100-900 r in one dose, or increasing doses by 100 r, on the head) a decrease of the cytoplasmic ribonucleic acid and a slight decrease also of the thymonucleic acid of nuclei, were observed. Other morphological observations are described.

C. SCANDURA (Chem. Abstr.)

Histochemical Detection of Tigroid Matter in Nerve Cells. Shabadash, A. L. [*Doklady Akad. Nauk. S.S.S.R.*, **91**, 405 (1953).]

The method depends on the presence of ribonucleic acid in the tigroid matter and is performed by selective binding by this acid of basic dye in buffers with pH 4·2-4·5. Methylene blue is the selected dye which gives clean differentiation from other structures of the neurons of the brain or the spinal cord; for the brain pH 4·5 is best, for the spinal-cord specimens 4·3. Acetate, citrate, or phosphate buffers can be used, the latter being somewhat better. After the methylene blue treatment and rinsing, the specimen is fixed with 6 per cent. NH_4 molybdate.

G. M. KOSOLAPOFF (Chem. Abstr.)

Biochemical Studies on the Action of the Nerve. VII. Histochemical Determination of Cholinesterase. Okinaka, Shigeo, et al. [*Igaku to Seibutsugaku* (*Med. and Biol.*), **26**, 221 (1953).]

The distribution of acetylcholinesterase in the central nervous system, as determined by the method of Koelle, is given with a photograph reproducing the histogram.

M. NAKAMURA (Chem. Abstr.)

Transmission and Functional Action in Peripheral Nerves of Rats in Avitaminosis B_1. Casella, C., and De Caro, L. G. [*Arch. sci. biol.* (*Italy*), **37**, 229 (1953).]

The speed of transmission and amplitude of functional action of the sciatic nerve of rats have been tested. No difference has been noted between rats suffering from avitaminosis B_1 and control animals. Prolonged stimulation of muscles affected by tetanus causes no signs of increased fatigue of the peripheral nerves in animals suffering from avitaminosis. Probably the peripheral nerves, even in a state of advanced avitaminosis, contain enough vitamin B_1 to continue their function. The vitamin B_1 level in the peripheral nervous system in animals suffering from avitaminosis B_1 decreases slower than in other tissues.

FRANK W. DANN (Chem. Abstr.)

Rates of Glycolysis in Human Red Cells in Relation to Energy Requirements for Cation Transport. Bernstein, Ralph E. [*Nature*, **172**, 911 (1953).]

Red blood cells separated from white cells utilized glucose at the rate of 1·18 millimoles/l. red cells/hr. at 37° (range of 18 samples, 0·9-1·35). White cells account for 25 per cent. of the glucose utilization of standardized whole blood. Calculations from the transport data of Solomon and of Raker, *et al.* (C.A. **44**, 10101a) indicate that the ion transport necessary to maintain the steady state requires a maximum of 1/3 of the free energy available from glycolysis. Incubation for 3 hours at 37° with glucose is sufficient to restore to normal levels the K lost and Na gained during storage at 4-8° for 1-3 days.

ROBERT B. DEAN (Chem. Abstr.)

Effects of Adrenalectomy and replacement Therapy on Brain Circulation, Oxygen Consumption, and the Electrocorticogram. Bergen, John R., et al. [*Am. J. Physiol.*, **175**, 327 (1953).]

A comparison of the relative rate of blood flow through heads of normal and adrenalectomized salt-maintained rats indicates that adrenalectomy decreases the flow. The decreased blood flow can be restored to normal in 2 hours with adrenal cortical extract, Δ^5-pregnenolone. or cortisone but not with deoxycorticosterone. The circulatory slowing results in a marked, reduction of O consumption by the tissues. Restoration of O consumption is aided by adrenal cortical extract and Δ^5-pregnenolone but not by deoxycorticosterone. The reduction in brain O consumption following adrenalectomy is accompanied by reduction of the electrocorticogram frequency. Restoration of the frequency is produced by the same steroids that restore blood flow and O consumption.

E. D. WALTER (Chem. Abstr.)

Migrainoid Headaches. Donahue, Hugh C. [*Arch. Ophthalmol.*, **44**, 285 (1950).]

The pathological and biochemical aspects of headaches from histamine, muscle ischemia, hypoglycemia, and vascular changes are discussed and reviewed.

W. C. TOBIE (Chem. Abstr.)

Lesions of the Central Nervous System of the Guinea Pig in Hypervitaminosis A. Brusa, A. and Testa, F. [*Intern. Z. Vitaminforsch.*, **25**, 55 (1943).]

Hypervitaminosis A of the guinea pig was accompanied by severe damage to the cerebral cortex, cerebellum, thalamus, and mesencephalon.

JOSEPH S. HEPBURN (Chem. Abstr.)

Chromatography of Free Amino Acids in Normal Human Spinal Fluid. Kamali, D., and Porcellati, G. [*Boll. soc. ital. biol. sper.*, **28**, 1275 (1952).]

Three amino acids were always present: glycine, alanine, and valine.

M. ELLIOTT (Chem. Abstr.)

Bioelectric Cerebral Activity in Man during Vitamin B_1 Deficiency. Rottger, Ernesto, et al. [*Semana méd.* (*Buenos Aires*), 1953, (**11**), 382.]

A special wave rhythm appears when the vitamin B_1 level drops to a point that renal excretion is abolished. The wave coincides with the cardiac diastole.

A. E. MEYER (Chem. Abstr.)

Phosphoaminolipides of Nervous Tissue of Premature Infants. Blancher, G., and Vaux-Saint-Cyr, C. [*Compt. rend. soc. biol.*, **147**, 266 (1953).]

Compared to values for the adult brain, the fatty acids of the phosphoaminolipides of the premature infant brain were less unsaturated and were especially lower in hexaenic acids.

L. E. GILSON (Chem. Abstr.)

Chemical Changes in Rabbit Brain during Anoxia. Albaum, Harry G., et al. [*Am. J. Physiol.*, **174**, 408 (1953).]

Changes in metabolite concentrations of various portions of the rabbit brain were determined during progressive stages of anoxia and correlated with electric measurements of function. Disappearance of function and the inexcitability of all measurable elements during anoxia were associated with a moderate decrease of adenosinetriphosphate (ATP), phosphocreatine, and glycogen. Disappearance of ATP was more rapid than that of phosphocreatine. Urethan controls had a higher level of ATP than the unanesthetized animals. The different regions of the forebrain showed no differences in ATP level or in depletion under anoxia.

E. D. WALTER (Chem. Abstr.)

Nature of Sympathetico-adrenal Discharge under Conditions of Excitation of Central Autonomic Structures. Redgate, E. S., and Gellhorn, E. [*Am. J. Physiol.*, **174**, 475 (1953).]

The action of asphyxia and stimulation of the hypothalamus on the liberation of noradrenaline and adrenaline was studied in cats. Asphyxia leads to a liberation of adrenaline while excitation of the hypothalamus causes the appearance of either noradrenaline or adrenaline in the blood.

E. D. WALTER (Chem. Abstr.)

The Influence of Excitation of the Central Nervous System on Some Aspects of Metabolism in the Cerebral Hemispheres of Animals. Vladimirov, G. E. [*Doklady Mezhdunarod. Fiziol. Kongr., Montreal*, **19**, 33 (1953).]

Excitation of the central nervous system by camphor intensifies glycolytic processes. Lactic acid (I) content in brain increases. Strychnine raises (I) in the blood but not in the brain. During excitation, brain pyruvic acid and (I) increased but neither adenosinetriphosphate (II) nor phosphocreatine (III) changed. Inorganic P rose from 15·3 to 19·9 mg. per cent. after stimulation for 25 seconds. The specific activity of various P fractions was determined after injection of P^{32}. Relative specific activities of (II) and (III) rose slowly. Phospholipides were relatively inert, their specific activity being 3 per cent. within 4 hours and 10 per cent. after 24 hours. Deoxyribonucleotides had an even slower turnover; that of ribonucleotides was somewhat faster, while phosphoproteins had the most rapid turnover rate. The NH_3 content of brain rose during the first 15 seconds of stimulation, after 60 seconds returned to normal levels, and after 120 seconds dropped below the normal level.

HERMAN I. CHINN (Chem. Abstr.)

Characterization Test of Epileptiform State Phases by Means of the Transhemation Reaction. Blyumenfel'd, L. A., et al. [*Doklady Akad. Nauk S.S.S.R.*, **92**, 189 (1953).]

The rate of the transhemation reaction reflects the phases of the epileptic state. Preconvulsion state reduces the rate of transhemation, a change that becomes evident immediately upon introduction of camphor. The retardation is then replaced with a constantly increasing rate of transhemation. If the convulsions are feeble, the latter phase is not apparent. The postconvulsive state is characterized by gradual retardation of transhemation. The experiments were run on rabbits, and the transhemation reaction was run as described earlier.

G. M. KOSOLAPOFF (Chem. Abstr.)

Brain Metabolism in Excitation and Inhibition of Central Nervous Activity. Palladin, A. V. [*Doklady Mezhdunarod. Fiziol. Kongr., Montreal*, **19**, 129 (1953).]

Central nervous excitation was produced in rabbits by a single injection of pervitin (I) or of cardiazole (II). The animals were sacrificed by decapitation 4 hours after injection, the brain was frozen in liquid air and analyzed for ribonucleic acid (III), deoxyribonucleic acid (IV), lactic acid (V), free and bound polysaccharide (VI), amylase, phosphorylase, adenosinetriphosphate (VII), and phospholipides. With (I), there was little change in the nucleic acid concentrations in the brain; the rate of metabolism of (III) was unchanged and of (IV) fell slightly; the preformed (V) was less than normal and less than that observed after (II). Anaerobic glycolysis was greater with (I) than with (II) or in the normal state. During the first hour after (I), (VII) fell, but returned to normal within 2 hours and rose still further after 4 hours. With (II), (VII) remained normal for the first 2 hours and then fell slightly. The relative specific activity of (VII) was above normal during the first 2 hours after (I), but remained subnormal with (II). Prolonged excitation leading to convulsions lowered (IV) and (VI) with a concomitant increase in the activity of the enzymes destroying these substances.

Rats were stimulated with 25-40 v. and examined 30 minutes later. Chronic excitation lowered the activity of deoxyribonuclease (VIII) and decreased the amount of P^{32} incorporated into (III). In embryonic development (IV) was low in the 20-22 day embryo but rose towards the 28-29th day. Changes in the activity of (VIII) coincided with the appearance of new nervous functions. In other experiments, rats were kept awake for 2-3 days with a rotating drum which turned for 30 seconds every 5 minutes. During this period of insomnia, (VII) decreased and inorganic P increased. Glycolytic activity decreased. To inhibit central activity, medinal was used in doses adequate to produce sleep of 18-20 hours daily for 4-6 days. (VIII) activity increased considerably. (III) and (IV) changed only slightly. It was concluded that during sleep synthetic processes predominated. H. I. CHINN (Chem. Abstr.)

The Effect of a Cholesterol-free Brain Fraction Against Diet-induced Atherosclerosis. Jones, R. J., et al. [*Circulation Research* 1, 530-3 (1953).]

The feeding of a lipide-poor and virtually cholesterol-free residue of mammalian brain mitigated the hypercholesteremia and atherosclerosis in cholesterol-fed chicks. This effect could be sustained for at least 5 weeks. The degree of reduction in hypercholesteremia was roughly proportional to the dose of brain extract (given as 5, 10, and 15 g./100 g. diet). The probable mechanism depends upon the capacity of oral cerebrosides to convert a large proportion of fecal sterols into unabsorbable coprosterol, thus rendering intestinal cholesterol unavailable. THERESA McKEE (Chem. Abstr.)

Phosphorus Metabolism in the Brain upon Stimulation of the Higher Nervous Activity. Palladin, A. V., and Rybina, A. A. [*Doklady Akad. Nauk. S.S.S.R.*, **91**, 903 (1953).]

The technique of labelled atoms was employed in the demonstration of the fact that pervitin and cardiazole produce a different reaction in the process of brain metabolism in respect to phosphates, particularly adenosinetriphosphate (ATP). Rabbits were given either of the 2 drugs (7-8 mg./kg., or 50-70 mg./kg. respectively) and the rapidly excised brain tissue was frozen in liquid air. When pervitin is used as the brain stimulant, within 1 hour there is observed a decline of ATP content in the brain, after this its content rises to normal within 2 hours, then continues to rise up to 4 hours reaching above normal levels. The inorganic phosphate shows a precisely reversed order of changes. When cardiazole was used as the stimulant, the brain content of ATP was supernormal in the 1st hour then dropped and remained subnormal after 2 or even 4 hours. The inorganic phosphate content gave a reverse order. If labelled phosphate was introduced simultaneously with the drugs (P^{32}-phosphate in unspecified form) the radioactivity of the brain ATP gave the following picture: with pervitin the radioactivity of brain ATP rises over the 1st 4 hours; with cardiazole the activity is subnormal without much change over the duration of experiments. Thus, pervitin promotes the metabolic exchange in ATP and cardiazole does not.

G. M. KOSOLAPOFF (Chem. Abstr.)

A New Concept of Organization of the Central Emetic Mechanism: Recent Studies on the Sites of Action of Apomorphine, Copper Sulfate, and Cardiac Glycosides. Wang, S. C., and Borison, Herbert L. [*Gastroenterology*, **22**, 1 (1952).]

Experiments on 150 dogs indicated that apomorphine induces vomiting solely through a central action. However, this action is on receptors located in the chemoreceptor trigger zone and is not directly on the vomiting center per se. The site of emetic action was determined by the fact that trigger zone ablation resulted in total refractoriness to apomorphine without any change in responsiveness to oral $CuSO_4$ and that gastrointestinal denervation did not reduce the sensitivity to oral apomorphine. Experiments with $CuSO_4$ performed on 154 dogs revealed that this substance can induce emesis through 2 different actions: (a) reflex vomiting, due to gastrointestinal irritation, occurs after a short latent period of approximately 15 minutes following effective oral doses; (b) central vomiting due to excitation of the chemoreceptor trigger zone by circulating Cu, is elicited after intravenous injection and also follows large oral doses administered after gastrointestinal denervation. These results constitute the basis for a proposal of a functional procedure to ascertain the localization of the sites of action of other emetic agents. Experiments on digitalis emesis are presented to illustrate the suggested procedure. Trigger zone ablation sharply reduces the incidence of emesis following both intravenous and oral doses of scillaren C and lanatoside C, particularly of the latter. However, vomiting after a longer latency is still elicitable with elevated doses of digitalis glycoside in some of the operated animals. The emetic response to digitalis is not impaired either by gastrointestinal denervation or by cardiac denervation. It is concluded that digitalis has an important central (chemoreceptor trigger zone) component of action but that it also acts peripherally at a receptor site, yet unknown, which lies outside of the gastrointestinal tract.

RUTH BERGGREN (Chem. Abstr.)

Hypothalamic Influences on Hydrochloric Acid Secretion of the Stomach. Porter, R. W., et al. [*Surgery*, **33**, 875 (1953).]

Stimulation experiments in the monkey reveal dual hypothalamic influences increasing the secretion of gastric HCl. The first originates in the anterior hypothalamus, is conducted through the vagus nerve, and is blocked only by vagotomy. The peak of its response is prompt. The second, whose peak response is later, arises in the posterior hypothalamus, is conducted humorally through the pituitary-adrenal system, and is blocked only by adrenalectomy.

The increase in gastric HCl induced by administration of insulin exhibits features of the responses to both anterior and posterior hypothalamic stimulation.

RUTH BERGGREN (Chem. Abstr.)

Phosphoproteins and Cerebral Metabolism. Engel'gardt, V. A., and Lisovskaya, N. P. [*Doklady Mezhdunarod. Fiziol. Kongr., Montreal*, **19**, 209 (1953).]

The specific activity of P^{32} in cerebral tissue was fractionated into inorganic (I) and protein P (II). Incubation of washed slices at 37° with P^{32} increased the specific activity of (I) about 2·5 times that at 0°. Similar treatment increased the specific activity of (II) more than 10 fold. Incubation of tissue with glucose plus NaCN, dinitrophenol, or NaN_3 decreased markedly the specific activity of (II) without affecting appreciably that of (I). The metabolic importance of (II) is discussed in the light of these findings.

HERMAN I. CHINN (Chem. Abstr.)

A Nerve-inhibiting factor in Brain and Spine. Florey, Ernst. [*Naturwissenschaften*, **40**, 295 (1953).]

Brains and spinal cord of animals (horse, cow, cat, rabbit, guinea pig, rat, mouse) contain a substance which in dilution down to 10^{-6} will give an inhibitory effect on peripheral nerves of crawfish (Cambarus clarkii and Palinurus argus). It inactivates the nervous automat centers of the heart, slows down the transmittal of impulses to the claws, and cuts out the spontaneous intestinal activity. The factor is stable in boiling water, dialyzable water and HCl-EtOH soluble, insoluble in EtOH, PrOH, BuOH, Me_2CO, Et_2O, $CHCl_3$ and C_6H_6; it is active only at pH less than 7. Tests on guinea pig and rabbit ileum indicate that aqueous brain and spine extracts (boiling water) have a contracting effect in normal Tyrode solution; probably the same factor is involved.

B. J. C. VAN DER HOEVEN (Chem. Abstr.)

Phosphocreatine Changes in the Brain Tissues of Rats. Tseitlin, L. A. [*Biokhimiya*, **18**, 311 (1953.)]

An intense hydrolytic splitting of phosphocreatine occurs in dialyzed extracts of brain tissues, optimum for which is pH 6·0-7·1. The formation of phosphocreatine in the brain tissues by means of esterification with the adenyl system proceeds slowly in the absence as well as in the presence of fluorides. Attempts to determine whether the formation of phosphocreatine proceeded by means of transfer of the phosphate fraction of phospho-amino acids to the creatine met with no success.

B. S. LEVINE (Chem. Abstr.)

Incorporation of Labeled Phosphate into the Lipides of Brain Dispersion. Dawson, R. M. C. [*Biochem. J.*, **55**, 507 (1953).]

Phospholipide P present in adult brain tissue is in a state of dynamic equilibrium with the inorganic phosphate in the cerebral cells. Incorporation of labeled phosphate into the brain lipides is associated with oxidative phosphorylation, optimum incorporation requiring oxidizable substrate, O, phosphate acceptor, Mg ions, and cytochrome c. The incorporation process is greatly accelerated by the presence of F ions. The incorporation is inhibited by hypertonic mediums or by a low concentration of Ca ions and glucose. Inhibitors which uncouple oxidative phosphorylation also uncouple the respiration from the incorporation of labeled phosphate into the lipides of a guinea-pig brain dispersion. The mechanism is believed to include an esterification of P^{32} into high-energy phosphate compounds which then phosphorylate phospholipide precursors.

S. MORGULIS (Chem. Abstr.)

Exchange of Albumin Between Plasma and Cerebrospinal Fluid. Fishman, Robert A., and Halla, Roman J. [*Am. J. Physiol.*, **175**, 96 (1953).]

The exchange of I^{131}-tagged albumin, administered intravenously, between plasma and cisternal fluid was studied in normal dogs. The appearance time of iodoalbumin in cisternal fluid was less than 40 minutes. The equilibrium time, representing the mixing of the spinal fluid albumin with the plasma albumin pool, occurred about 20 hours after injection. The average turnover times of the albumin in plasma and cisternal fluid were 6·3 and 8·0 days, respectively. The delayed appearance and equilibrium times and turnover rate may be functions of the blood-cerebrospinal fluid barrier,

E. D. WALTER (Chem. Abstr.)

Phenylpyruvic Acid Oligophrenia. Stadler, H. E., and Dryer, Robert L. [*Arch. Pediat.*, **70**, 298 (1953).]

In a case of this disease in a child 11 months old, the urine contained 0·12 g. phenylpyruvic acid per 100 cc. Of the qualitative tests for this acid, the formation of a fleeting green color with $FeCl_3$ was found preferable to the formation of a yellow precipitate with 2,4-dinitrophenylhydrazine or the production of a mahogany color with alkali picrate, since the latter tests are not specific. Since creatinine reacts with alkali picrate in the same manner, creatinine must first be removed from the urine by treatment with Lloyd's reagent. Glucose also gives the 2,4-dinitro-phenylhydrazine reaction.

JOSEPH S. HEPBURN (Chem. Abstr.)

Effects of Insulin on Melanoma and Brain Metabolism. Woods, Mark, et al. [*Biochim. et Biophys. Acta*, **12**, 329 (1953).]

Normal mouse brain and melanoma slices showed similar $Q^{O_2}_{CO_2}$ values. But whereas addition of Mg and PhOH increased the $Q^{N_2}_{CO_2}$ of brain, it slightly inhibited the $Q^{N_2}_{CO_2}$ of melanoma. And insulin (I) increased the $Q^{N_2}_{CO_2}$ of melanoma, but not of brain. Crystallized Zn-(I) freed of hyperglycemic factor was as effective as regular Zn-(I) in raising the $Q^{N_2}_{CO_2}$ of melanoma; the factor, freed of (I) had no appreciable effect. The relative concentrations of Zn and (I) influenced critically the extent of increase of $Q^{N_2}_{CO_2}$. Under aerobic conditions, (I) increased the respiratory quotient, $Q^{O_2}_{CO_2}$, and absolute Pasteur effect of melanoma. Q_{O_2} (respiration) never increased, but sometimes decreased. The $Q^{N_2}_{CO_2}$ of tumor slices of melanoma-bearing mice exposed to temperatures of 35 of 40° was lower than that of slices from mice exposed to temperatures around 20°. (I) caused an increase in the $Q^{N_2}_{CO_2}$ of the former slices to a value about that of the latter slices (whose $Q^{N_2}_{CO_2}$ was affected by (I) only slightly). Prolonged exposure to high temperatures resulted in inhibition of tumor growth and further decline in $Q^{N_2}_{CO_2}$. MORTON PADER (Chem. Abstr.)

Action of Some Glycosides on the Central Nervous System. Alibrandi, G., et al. [*Atti soc. lombarda sci. med. biol.*, **8,** 146 (1953).]

Local application on the motor area of the dog brain showed that g- and k-strophanthin and thevetin had a high convulsive effect. Gitoxin had little activity; digitoxin, gitalin, and deoxycorticosterone glucoside had none. The effect of strychnine was slightly enhanced by gitoxin, not influenced by gitalin and digitoxin, and impaired by deoxycorticosterone glucoside. A. E. MEYER (Chem. Abstr.)

Effect of Sodium Dehydrocholate on the oxygen uptake of Liver and Cerebral Cortex Slices of fed and starved rats. Schanker, L. S., and Eisenbrandt, L. L. [*J. Pharmacol. Exptl. Therap.*, **109,** 367 (1953).]

Na dehydrocholate (I), 0·00047 M in a medium containing glucose, depressed the O uptake of cerebral cortex slices of fed and starved rats. This depression did not occur in a glucose-free medium. Starvation had no effect on the O uptake of the brain slices. In a glucose-free medium (I) depressed the O uptake of liver slices from fed rats but not liver from starved rats. With glucose added to the medium this depression did not occur with liver from either fed or starved rats. L. E. GILSON (Chem. Abstr.)

Nucleases in the Cerebrospinal Fluid. (I) Ribonuclease in Normal, Neurologically Normal, and in Pathological Cerebrospinal Fluids. Kovacs, Ernest. [*Can. J. Med. Sci.*, **31,** 437 (1953).]

Ribonuclease (RNA-ase) was studied in 800 cerebrospinal fluid samples by the uranyl acetate precipitation technique followed by total acid-soluble P determinations before and after incubation. Normal and neurologically normal cerebrospinal fluids showed low RNA-ase activity, less than 20 per cent. of the substrate being depolymerized in 24 hours. A few specimens showing high values were encountered; 1 specimen each in acute nasopharyngitis, 25 per cent.; infectious mononucleosis, 28 per cent.; and myositis, 30 per cent. Meningitis cerebrospinal fluids showed a wide range of RNA-ase activity, 0-50 per cent. Poliomyelitis specimens showed uniformly the highest values, 15-52 per cent. This high RNA-ase activity in the case of poliomyelitis paralleled chronologically the chromatolysis of the motoneurons and is of special significance. A. E. TEERI (Chem. Abstr.)

Brain Biochemistry in Relation to Experimental Epilepsy. The Effect of Experimental Epilepsy upon Oxidation-reduction Processes of the Brain. Kudryavtseva, A. I., and Kudryavtseva, N. G. [*Ukrain. biokhim. zhur.*, **22,** 435 (1950).]

Young rabbits were killed 10 minutes, 2 hours, and 24 hours after epileptic seizure caused by an electric current. Ascorbic acid (I) was determined by the method of Birch *et al.*, glutathione (II) by the method of Kvenzel and Vahkold, and catalase (III) by the method of Bach and Zubkova. Alternating domestic current of stepped-up voltage caused 4 to 8 seizures. After 30-40 minutes the biochemical changes were back to normal. No major epileptic seizures were invoked since the central nervous system (CNS) of the animal was never fully exhausted. Results: The H_2O content of the CNS of rabbits in experimental epilepsy, caused by electroshock, fluctuated within the normal range; (I), (II), and (III) increased sharply, pointing to increased oxidation processes in the animal brain. Increased contents of (I), (II), and (III) were observed not only directly after the seizure, but also after 2 hours and 24 hours. Conclusions: The dry residue contents of different parts of the rabbit brain in experimental epilepsy fluctuate within the normal; (III) activity in the cerebral hemispheres is increased; total and reduced (II) contents in the cerebral hemispheres are considerably increased, whereas oxidized (II) is decreased. After the experimental seizure (I) increases in the hemispheres and brain stem. The following values were found. Normals: average dry residue in percentage: cerebral hemispheres 20·7, cerebellum 23·0, brain stem 26·8; (III) in mg. of H_2O_2/g. of tissue: cerebellum 105·6; (I) in mg. percentage: cerebral hemispheres 19·0, cerebellum 22·9, brain stem 13·6; (II): cerebral hemispheres, total 1·20, reduced 0·71, oxidized 0·29. Experimental epilepsy: after 10 minutes: average dry residue in percentage: cerebral hemispheres 20·60 per cent., cerebellum 22·99, brain stem 26·98; (III) in mg. H_2O_2 per g. of tissue: 188·1 in cerebral hemispheres; (I) in mg. percentage: cerebral hemispheres 22·35, cerebellum 26·43, brain stem 14·98; (II) total in cerebral hemispheres 1·65, reduced 1·48, oxidized 0·17; after 2 hours: average dry residue: cerebral hemispheres 20·20, cerebellum 23·41, brain stem 26·07; (III) 170·8 in cerebral hemispheres; (I) cerebral hemispheres 23·48, cerebellum 29·13, brain stem 16·32; (II): 1·72, 1·53, 0·18, respectively; after 24 hours: average dry residue: cerebral hemispheres 20·60, cerebellum 23·39, brain stem 26·52; (III) 172·2; (I) cerebral hemispheres 22·44, cerebellum 26·27, brain stem 15·58. (II): 1·57, 1·45, 0·12, respectively.

CLAYTON F. HOLOWAY (Chem. Abstr.)

Mechanism of Action of Chemical Substances at Nerve Endings and the Part Played by Peripheral Ganglia. Burn, J. H. [*Acta Physiol. Scand.*, **29**, 40 (1953).]

The increased sensitivity towards acetylcholine of the denervated sphincter iridis is apparently due to a loss of cholinesterase. It was also found that the denervated nictitating membrane is hypersensitive to noradrenaline because there is less amine oxidase available to destroy it. The same holds true for adrenaline since hypersensitivity to noradrenaline is closely correlated with hypersensitivity to adrenaline. From the effects on the normal and denervated nictitating membranes (studied in the spinal cat) sympathomimetic amines fall into 3 distinct groups. First, the simplest amine, phenylethylamine (also derivs. with CH_3 group attached to α-C or OH group in p-position in the ring) and tyramine act by competing for the enzyme, while phenylisopropylamine or its N-methyl derivs. inhibit the enzyme at the sympathetic nerve endings. The second group have an OH attached to the β-*C* of the side chain and act both by inhibiting or competing with the enzyme and by combining with the receptors. Ephedrine acts partly on the nictitating membrane and partly by inhibiting amine oxidase. The third group of sympathomimetic amines, which all contain 2 OH groups in the 3,4 positions in the ring, do not compete for the enzyme but may suppress the release of transmitter.

S. MORGULIS (Chem. Abstr.)

Action of Succinylcholine and Curare on the Muscle Spindles. Granit, Ragnar. et al. [*Acta Physiol. Scand.*, **29**, 86 (1953).]

The quaternary ammonium base (succinylcholine iodide) has a transient blocking effect on neuromuscular transmission. It is a powerful and selective activator of muscle spindles leaving the Golgi organs intact. Even after the large and small fiber motor end-plates are blocked by curare, succinylcholine can still activate the spindles.

S. MORGULIS (Chem. Abstr.)

The Structure of Brain Sphingosine. Kiss, József, and Bánfi, Dezsö. [*Magyar Kém. Fólyóirat*, **59**, 232 (1953).]

Natural sphingosine was converted by ozonolysis into α, γ-dihydrozy-β aminobutyrolactone. The latter was then converted into threoninol or into a related compound of known configuration. Aminotetrose was isolated in form of its dinitrophenyl osazone among the decomposition products of the ozonolysis of diacetylsphingosine. Aminotetronic acid obtained at the ozonolysis of triacetylsphingosine was separated in a crystallized form as its well defined lactone HCl.

ISTVÁN FINÁLY (Chem. Abstr.)

Influence of Citrate and Choline Citrate on the Anaerobic Synthesis of Acetylcholine. Fuchs, U., and Keiss, H. [*Klin. Wochschr.*, **31**, 951 (1953).]

Choline acetylase from brain extract produces the same amount of acetylcholine from citrate as from acetate. Choline citrate is as effective as choline and citrate. Citrate is not only a source of acetate but also binds the Ca^{++} ions, which activate cholinesterase.

ERICH HEFTMANN (Chem. Abstr.)

Pentoses in the Blood, Urine, and Spinal Fluid in Patients with Head and Facial Injuries. Masturzo, M., and Negro, L. [*Boll. soc. ital. biol. sper.*, **29**, 255 (1953).]

Normal persons showed in 46 per cent. presence of pentoses in the blood with an average of 1·38 mg. in 100 cc. and a maximum of 4·5 mg. In 18 cases of head injuries, 67 per cent. had pentose in the blood with an average of 2·63 and a maximum of 9·5 mg. Pentoses were found in the urine of the controls in 84·6 per cent. with an average of 6·01 and a maximum of 15 mg. The patients showed pentoses in the urine in 94·5 per cent. with an average of 8·63 mg. and a maximum of 17·5 mg. The spinal fluid of the injured persons gave mostly lower, but in a few cases higher, values than the blood.

A. E. MEYER (Chem. Abstr.)

Adrenal Cortical Function in Chronic Schizophrenia (Stress, Adrenaline Test, Adrenocorticotropic Hormone Test). Faurbye, Arid, et al. [*Acta Endocrinol.*, **8**, 215 (1951).]

In schizophrenics and normal controls the adrenal function has been investigated by means of (1) stress, (2) adrenaline test, (3) adrenocorticotropic hormone (ACTH) test. The ACTH test and the adrenaline test gave uniform and clear responses in all normal controls, but in schizophrenics the responses were uneven and there was a far greater individual variation than in the normals. It is concluded that there is a slight relative adrenal cortex insufficiency in the chronic schizophrenic, but it is uncertain whether this insufficiency is an original constitutional trait which facilitates the manifestation of schizophrenia or whether it arises simultaneously with the disease as a result of a provoking stress, secondary to the psychosis caused by inactivity, or as part of a compled metabolic disturbance which is the cause of the psychosis or accompanies it. E. P. HALPERN (Chem. Abstr.)

Allergy to Estrone in Cases of Migraine. de Wit, J. C. [*Acta Endocrinol.*, **5**, 173 (1950).]

An investigation was made in 70 cases of migraine, and it was found that in 42 cases (60 per cent.) the attacks were related to the menses. Of these, 39 (93 per cent.) had an allergic reaction to estradiol benzoate (in oil) and estrone (in oil and water). Eleven women of this group had an attack of migraine together with the allergic reaction. In 28 cases where there was no relation between the onset of the attacks and menstruation, there was no allergic reaction to the estrogens. E. P. HALPERN (Chem. Abstr.)

Epilepsy and Endocrine glands. II. Influence of Cortisone on Predisposition to Experimental Reflex Epilepsy in the Dog. Pasolini, F. [*Boll. soc. ital. biol. sper.*, **28**, 298 (1952).]

Although deoxycorticosterone acetate inhibits Anantea epilepsy in dogs, cortisone increases it, possibly by increased water retention. There is biological antagonism between the 2 compounds. M. ELLIOTT (Chem. Abstr.)

The Effect of Electric Shock on the Adrenals of the Rabbit. Pekkarinen, A., et al. [*Acta Endocrinol.*, **10**, 167 (1952).]

Electric shock given to 9 rabbits on 10 successive days increased the size of the adrenals, decreased the concentration of adrenaline and of cholesterol, while the ascorbic acid remained unchanged. The response of individual animals showed considerable variation.

H. B. COLLIER (Chem. Abstr.)

Mode of Action of Acetylcholine. Mode of Action of Biologically Active Substances. Župančič, A. O. [*Acta Physiol. Scand.*, **29**, 63 (1953).]

It is assumed that the receptive protein is identical with (ChE) (cholinesterase) which combines with free ester mols. (ACh) released from the inactive form existing in the tissues. This results in stimulation with subsequent hydrolysis to inactive compounds while the (ChE) is ready to react with more (ACh). A distinction is made between the receptive (R) (ChE) which is essential for (ACh) action, and barrier (ChE) of the interstitial fluid which interferes with the (ACh). The stimulating effect of stable choline esters indicates that this must be produced by combination with (RChE) and not by a process of hydrolysis. In the leech muscle it was found that the (ChE) of the interstitial fluid is of the nonspecific type, whereas the muscle enzyme proper is acetylcholinesterase and is roughly 10 times more active. The potentiating influence of eserine is attributed to this distribution, and this view is supported by the observation on the frog sartorius muscle with negligible interstitial fluid (ChE) activity which cannot be markedly sensitized to (ACh) action by eserine. The hypothesis that cell receptors excitable by (ACh) are identical with (RChE) is extended to other biologically active substances and it is assumed that these produce their specific effects by acting on the enzyme which inactivates them. Thus, the cell receptors for adrenaline are thought to be identical with monamine oxidase (MO). Ephedrine (α methylated amine) is known to be an (MO) inhibitor; progesterone, which prevents the stimulating action of adrenaline on the rabbit uterus, strongly inhibits (MO) in vitro. Similarly, cell receptors for histamine would be expected to be identical with tissue diamine oxidase (DO), and many antihistaminic drugs (antistine, benadryl) were found to be powerful inhibitors of (DO). Likewise, the rat uterus, which is very poor in (DO), is not stimulated by histamine. According to the hypothesis, CO_2-sensitive structures would be identical with carbonic anhydrase (CA). Cyanide is a reversible inhibitor of (CA) and also stimulator of chemoreceptors. Lobeline is regarded as the most potent stimulator of chemoreceptors and is a strong inhibitor of (CA) in vitro. Nicotine, also a strong stimulator of chemoreceptors in low concentrations, probably acts on (ChE), and in spite of its close pharmacological similarity to lobeline, does not inhibit (CA).

S. MORGULIS (Chem. Abstr.)

Reducing Properties of Muscle Tissues and Cerebral Hemispheres under Various Functional Conditions of the Organism. Lakhno, E. V., and Chagovets, R. V. [*Doklady Akad. Nauk. S.S.S.R.*, **91**, 133 (1953).]

Tissues of rabbits were examined as to their reducing properties (with methylene blue as the reagent). A single stimulation of muscle through the skin over 1 hour led to considerable decline of the reducing properties of the tissue and reduced activity of dehydrogenases of glutamic, hydroxybutyric, lactic, and malic acids. Experimental training of the muscle leads to some increase of the reducing properties and enzymic activity. The study of the gray and white matter of front and mid-parts of the brain was made similarly. After 1-hour stimulation (induction current) the reducing properties of the gray matter and the white matter lying directly below the former were reduced by 20-40 per cent.; after a 2 hour rest the decline was somewhat normalized and was noted even after 17 hours' rest. Experimental training over 2 weeks led to a 56 per cent. increase in the reducing properties of the gray matter. Narcosis by barbiturates lowers the dehydrogenating properties of both gray and white matter (30-40 per cent. and 20-25 per cent., respectively). Electrical stimulation of narcotized animals led to a higher reducing ability of the hemisphere that was being stimulated (difference of some 30 per cent.), indicating that under narcosis the effect of stimulation or irritation is more localized. Infiltration block of the spinal area of a rabbit with procaine while the animal was under narcosis, followed by electrical stimulation of the hind leg muscle for 1 hour, led to no detectable difference in the reducing properties of the 2 hemispheres.

G. M. K. (Chem. Abstr.)

Protein Analysis of the Cerebrospinal Fluid by Photoelectrical Interpretation of the Xanthoproteic Reaction. Duensing, F. [*Med. Klin.* (*Berlin*), **44,** 740 (1949).]

The photoelectrical method used permits better discrimination between normal and pathological findings. W. C. Tobie (Chem. Abstr.)

Silver Impregnation of Nerve Fibers. Peters, A. [*Nature*, **171,** 613 (1953).]

Blocking of various end-groups of protein suggests that the Ag impregnation of nerve fibers is due chiefly to the combination of histidine groups with the metal and confirms the recent work of Grassman and Kursch. Blocking of amine, carboxyl, sulfhydryl, and disulfide groups did not decrease the intensity of staining, aldehyde groupings are not present (negative Feulgen test) in alcohol-fixed material, and extraction of nucleic acids with trichloroacetic acid did not affect the impregnation, leaving the ring-containing amino acids, tryptophan, tyrosine, and histidine to be considered. Use of 2,4-dinitrofluorobenzene, which blocks tyrosine and histidine, greatly reduces staining. When the impregnation was carried out for 17 hours in $AgNO_3$ solution buffered over the range pH 4·0-9·0, it was found that very little Ag was taken up below pH 7; but above this value the amount increased rapidly to pH 9, suggesting the combination of Ag with the NH groups of histidine, which has a pK value of 6-7 (the pK of tyrosine is 10). Ag impregnation of smears of hemoglobin, fibrinogen, pepsin, and protamine showed a descending order of intensity of impregnation, paralleling their histidine, but not tyrosine, content. M. Hetrick (Chem. Abstr.)

Skin Changes and Prevention of Convulsions in Vitamin D_2-hypervitaminosis in Young Albino Rats. Froehlich, Alfred. [*Naunyn-Schmiedebergs Arch. exptl. Pathol. Pharmakol.*, **219,** 512 (1953).]

The reduction of the convulsion-producing effect of acid fuchsin, alopecia, thickening of the epithelium of the head, and inhibition of growth of young rats by excess of vitamin D_2 are interpreted as a consequence of decreased permeability of the tissues. The effect of theophylline which reestablishes the cramp effect is based on an increase of permeability. The formation of a "scull cap" in rats is caused by excretion of $Ca_3(PO_4)_2$ in the surface of the destroyed skin, secondary to degeneration. Recovery is possible if the administration of viosterol is interrupted at a proper time. A. E. Meyer (Chem. Abstr.)

Changes in the Distribution of Phosphorus Compounds in the Process of Synthesis of Acetylcholine in Extracts of Brain Tissue. Kometiani, P. A. [*Soobshcheniya Aka. Nauk. Gruzin. S.S.R.*, **12,** *No.* 1, 17 (1951).]

In rabbit-brain tissue homogenates and in Me_2CO-formed precipitations from brain tissue the synthesis of acetylcholine leads to formation of a difficulty hydrolyzable P substance, which appears to be phosphorylcholine, which forms by phosphorylation of choline and not via acetylcholine. Cytochrome c does not stimulate formation of acetylcholine or phosphorylation of choline. G. M. Kosolapoff (Chem. Abstr.)

Histochemical Studies on the Changes of Brain Glycogen Caused by Starvation. Kumamoto, Tetsuzo. [*Osaka Daigaku Igaku Zasshi*, **5,** 553 (1953).]

Ten male rabbits were starved from 6 to 27 days. As the starvation proceeded glycogen (I) in liver and brain decreased. The rate of decrease in the liver was smaller than that in the brain. In the area postrema, cerebral ventricle, and central canal (I) remained even at the later stage of starvation. The decrease of (I) was quicker in the neocortex than in the archicortex.

Itiro Tyuma (Chem. Abstr.)

Change in Lipides of the Brain under the Influence of Bacillus perfringens. Poverennyĭ, A. M., et al. [*Ukrain. Biokhim. Zhur.*, **25,** 127 (1953).]

Male guinea pigs, 380-420 f., were given intramuscular injections of 0·1 ml. of 15 per cent. $CaCl_2$, followed in 2 hours, by the same dose of toxin (lethal in 72 hours). The animals were killed 48 hours later, by introducing air into the heart cavity. The dried tissues, nerve, membranes and brain were extracted with ether, and the brain tissues were again extracted with hot, 96 per cent. EtOH. The lipide content of the brain tissues in the affected animals rose from 10·37 per cent. of the total (fresh) brain weight in the controls to 11·82 per cent. The ether-solution fraction, 7·31 per cent. in the controls, rose to 8·07, and lipide P, from 0·1901 to 0·2243 per cent. The ether-solution lipide P increased from 0·1345 to 0·1603 per cent. The alcohol solution fraction from 3·02 to 3·7 per cent.; alcohol solution lipide P, from 0·0559 to 0·059 per cent., and galactose, from 0·1107 to 0·1567 per cent. There was no change in the diamino phosphatides. The increase of P in the ether solution lipides might be due to phosphorylcholine, formed at the locus of infection, or in the blood, from the lecithin under the influence of the B. perfringens lecithinase. The great increase of cerebrosides could be considered as a specific reaction of the nervous tissue to the action of the toxin. The calculations were based on the fresh weight of the tissues. Boris Cutoff (Chem. Abstr.)

Experimental Epilepsy Induced in the Rhesus Monkey by the Intracarotid Injection of Diisopropyl-fluophosphate (DFP). Himwich, Harold. [*E. Trans. Am. Neurol. Assoc.*, **76,** 177 (1951).]

Intracarotid injection of diisopropyl fluophosphate (I) in rhesus monkeys produced 3 characteristic parts of a focal seizure: aura, fit, and postconvulsive hemiplegia, or one or two of these parts, depending on dosage used. (I) destroys cholinesterase, (II) and its neurological effects are therefore presumed to be related to the accumulation of acetylcholine in the brain. (II) concentration dropped more in the caudate nucleus of the injected side than in any other part of the brain in animals exhibiting forced circling after (I) injection.

Marion Horm Peskin (Chem. Abstr.)

Metabolism in Slices of Brain Cortex. The Level of Adenosine Triphosphate and its Changes Under the Influence of Glutamic Acid. Ac, G., Balaz, R., and Straub, F. B. [*Ukrain. Biokhim. Zhur.*, **25,** *No.* 1, 17 (1953).]

Examination of brain-cortex slices prepared from guinea pig and rat specimens showed that immediate freezing of the head in liquid air leads to an adenosine triphosphate (ATP) level of 1·5 mg./g.: during the customary 5-10 minutes delay in freezing necessitated by preparation of the slices, this level declined to 0·2-0·3 mg./g. Shaking the specimens at 38° in Krebs solution in the presence of glucose and a 95 per cent. O_2-5 per cent. CO_2 mixture led to an increase of ATP to 1 mg./g., which was maintained for 1 hour. Under anaerobic conditions, products of dephosphorylation of ATP appeared. If glucose was replaced by glucose 6-phosphate and fructose 1, 6-diphosphate, synthesis of ATP did not take place, possibly because of impermeability of the tissue cells to the phosphorylated substances. Succinic, malic, glutamic, lactic, and pyruvic acids also increased the rate of respiration of brain tissue, but the level of ATP achieved in their presence was only 50 per cent. of that attained with glucose. NaF (0·01M) arrested synthesis of ATP; 2,4-$(O_2N)_2C_6H_3OH$ increased respiration and lowered the ATP level, possibly by repression of Pasteur effect. Simultaneous use of glucose and glutamic acid raised the ATP level only by 0·5 mg./l. if the glutamic acid concentration was 0·01M; a lower concentration led to decreased synthesis of ATP. Of the acids tested, only aspartic acid had a slight possible effect. The repression ATP formation with low levels of glutamic acid was found to be reversible upon addition of pure glucose. When glutamic acid was added to the system, the latter showed increased respiration. The decrease in ATP may be the result of oxidation of glutamic acid—a process energetically favored over glucose oxidation. Aerobic glycolysis caused by glutamic acid was feeble and slow. The glutamic acid consumed by the tissue appeared as glutamine, the concentration of which reached a maximum within 15 minutes and remained at this level indefinitely. G. M. K. (Chem. Abstr.)

Specificity of Pigeon Brain Acetocholine Esterase. Whittaker, V. P. [*Biochem. J.*, **54,** 660 (1953).]

The "true" cholinesterases of erythrocytes, brain, and cobra venom act not only on acetylcholine and some other esters but also on a wide range of noncholine esters. Of the noncholine aliphatic esters so far studied 3,3-dimethylbutyl acetate is most rapidly hydrolyzed. The phylogeny of the avian brain is discussed. The greater part of the forebrain represents a development of striatal tissue from which the mammalian basal ganglia are derived. The higher proportion of this striatal tissue in the avian forebrain accounts for its relatively higher cholinesterase content compared with the mammalian brain. However, this does not account for the high activity of the optic lobes, cerebellum, or the brain stem for which a low proportion of fiber tracts in the avian brain may be responsible. The uneven distribution of the acetylcholine-acetocholinesterase-choline acetylase system in various synaptic areas leads to the concept of cholinergic and noncholinergic type of synaptic transmission in the mammalian brain. It is suggested that the central nervous system of birds possesses a larger proportion of cholinergic synapses. S. Morgulis (Chem. Abstr.)

The Proportion of Phosphatase Activity Demonstrable in the Brain by Histological Techniques. Pratt, O. E. [*Biochem. J.*, **55,** 140 (1953).]

The histological sites in brain, where adenosine triphosphate, adenosine 5-monophosphate, thiamine pyrophosphate, and glycerophosphate are hydrolyzed by acid and alkaline phosphatases, present characteristic differences. The preferential suppression of each reaction by suitable inhibitors and the difference in conditions required indicate that these are distinct enzymes. The histological study of phosphatase activity is made possible by precipitations of inorganic P at the site of its formation in the presence of Pb or Ca ions, producing colored compounds. The activities of acid and alkaline phosphatases, 5-nucleotidase, adenosinetriphosphatase, and thiamine pyrophosphatase are of the same order of magnitude in frozen, dried, paraffin-infiltrated brain tissue or in fresh tissue. The staining represents a high proportion of the tissue. Pyrophosphatase activity in the histological preparations was negligible, probably because of the high solubility of this enzyme in saline media.

S. Morgulis (Chem. Abstr.)

Changes in Oxygen Consumption and Radio-Iodine (Iodine^{131}*) Uptake Following Hypothalamic Lesions in the Albino Rat. Beattie, J., and Chambers, R. D.* [*Quart. J. Exptl. Physiol.*, **38,** 75 (1953).]

Bilateral lesions in the caudal hypothalamus of albino rats designed to sever the efferent pathways from the hypothalamic nuclei bring about a transient in O consumption of about

7 per cent. 24 hours after infliction of the lesions followed by a fall of about 10 per cent. of the control value 72 hours after the operation. This low O consumption remains constant for as long as 13 days. $(I)^{131}$ uptake by the thyroid gland over a period of 4 hours was not significantly different from that of a control group irrespective of the time after the lesions were inflicted. The histological structure of the thyroid gland 7 and 14 days after the lesions were made indicated that the thyrotropic hormone production was somewhat increased. The fall in O consumption was not related to body weight or body-temperature changes. It may be caused by the withdrawal of hypothalamic control of the rate of secretion of adrenaline.

RACHEL BROWN (Chem. Abstr.)

Changes in Blood Glucose Levels after Hypothalamic Lesions. Beattie, J., and Chambers, R. D. [*Quart J. Exptl. Physiol.*, **38,** 87 (1953).]

Section of the efferent hypothalamic pathways to the brain stem produces a fall in resting blood glucose level of about 38 per cent. below normal. Injection of a standard dose of insulin produced after 30 minutes the same fall in blood glucose concentration in rats with hypothalamic lesions as in normal animals. RACHEL BROWN (Chem. Abstr.)

Cofactor and Metal Requirements of Brain Mitochondria. Christie, G. S., et al. [*Proc. Roy. Soc.*, **B141,** 523 (1953).]

The survival of isolated brain mitochondria was measured by determination of the rates of oxidation of substrates of the tricarboxylic acid cycle and the processes of oxidative phosphorylation. The survival time was short but was prolonged by addition of certain soluble factors: adenosine triphosphate, coenzyme (I) glutathione, Co, and a new factor. Co was relatively inactive in the absence of glutathione, and glutathione was inert in the absence of Co. The new factor resembled glutathione in this respect. Even in combination these 3 factors required the presence of adenosine triphosphate and coenzyme I for exertion of their full effect. Cu antagonized Co, but its inhibitory effect was abolished by increasing the concentration of Co. These coenzymes are ineffective unless added to the mitochondria at the start of incubation. They apparently contributed toward the preservation of the integrity of the mitochondrial particles. JOSEPH S. HEPBURN (Chem. Abstr.)

Hexokinase in Various Areas of the Brain and in Various Functional States. Palladin, A. V., and Polyakova, N. M. [*Doklady Akad. Nauk. S.S.S.R.*, **91,** 347 (1953.)]

In narcotic sleep there is observed a somewhat lowered activity of hexokinase along with a rather high level of carbohydrate metabolism in the brain, but the level of carbohydrate consumption is lowered. The greatest hexokinase activity in dog brain is found in the gray matter of the cerebrum, followed by cerebellum, medulla, the white matter of the cerebrum, and finally the spinal cord. G. M. KOSOLAPOFF (Chem. Abstr.)

Effect of Cerebral Cortex on Carbohydrate Metabolism in the Skin. Lavrov, A. P., et al. [*Vestnik Venerol. i Dermatol., No.* 3, 3-5 (1953).]

Sugar loading of a rabbit followed by narcosis (amytal) does not cause an increase of sugar content in the skin and produces only a slight rise in blood sugar. On wakening the sugar values approach normal. G. M. KOSOLAPOFF (Chem. Abstr.)

The Permeability of the hemato-encephalic Barrier to Trypan Blue, especially during Acute Oxygen Deficiency. Eich, Jakob and Woermers, Kurt. [*Deut. Z. Nervenheilk*, **164,** 537 (1950); *Chem. Zentr.*, 1951, (1) 2309.]

An O deficiency of the brain was induced in 35 white rats weighing 90-180 g. and in 22 cats 5-10 weeks old by subjecting the animals to low-pressure treatment. During narcosis a 1-2 per cent. trypan blue solution was injected into the arterial vascular system of the brain. Examination of frozen sections of the brain revealed no differences between the animals which had been subjected to the low pressure treatment and the controls. Various conditions may account for the fact that even the brains of the controls appeared to be stained, although, actually none of the dye had passed the hematoencephalic barrier intravitally. The barrier remained impermeable even in cases of acute O_2 deficiency. It shows the same stability towards histamine in cases of CO poisoning. The hemato-encephalic barrier is damaged only by experimental conditions which affect the endothelium of the blood vessels of the brain. This can result, e.g. from injection of alcohol. Localization of the hematoencephalic barrier in the endothelium of the blood vessels of the brain is, therefore, assumed.

M. G. MOORE (Chem. Abstr.)

The Role of the Hypothalamus in the Control of Thyroid Function. Greer, Monte A. [*J. Clin. Endocrinol. and Metabolism*, **12,** 1259 (1952).]

Apparently the pituitary gland of the rat secretes 2 thyrotropic factors, a "growth" factor and a "metabolic" factor. The maintenance of the size of the thyroid is evidently dependent on the presence of a normal functional pituitary-hypothalamus relationship. If the hypothalamus is destroyed by electrolytic lesions or is separated from the pituitary, the thyroid does not undergo hyperplasia when the animal is given thiouracil. However the thyroid is able to maintain an approximate normal (I) metabolism even when the influence of the hypothalamus has been removed. Both the growth factor and the metabolic factor seem to be regulated, at least in part, by the level of circulating thyroid hormone. Although the exact mechanism is unknown, it is possible that the hypothalamus may exert either a neural or a neurohumoral control over the growth factor. N. R. STEPHENSON (Chem. Abstr.)

Developmental Brain Metabolism. Effects of Cortisone, Anoxia, Fluoracetate, Radiation, Insulin, and other Inhibitors on the Embryo, Newborn, and Adult. Hicks, Samuel P. [*Arch. Pathol.*, **55**, 302 (1953).]

Enzyme inhibitors were given to newborn adult, and pregnant rats and mice, and the lesions in the nervous system were described. Newborn animals, which survived anoxia for long periods, showed almost no brain damage. Glycogen decreased in the heart and liver, and probably in the brain-stem neurons. Iodaocetate, given before the anoxia, caused death within 3 minutes, although controls in air showed no lesions after 24 hours. Fluoride and insulin were also, but somewhat less, effective. Chlormercuribenzoate, oxophenarsine-HCl and cortisone had no effect on anoxic survival. Insulin produced hypoglycemia and necrosis of the brain-stem neurons in newborn animals, but no convulsions. In pregnant animals, hypoglycemia did not selectively damage the fetuses, though the mother showed cerebral damage. Cortisone or corticotropin in newborn animals caused considerable necrosis of the neuroblasts in the outer cortical zones, and repeated doses late in pregnancy caused widespread damage. Cortisone, corticotropin, testosterone, and diethylstilbestrol caused occasional neuron necrosis in the striatum or cerebral cortex, also hyperchromicity of nuclei and cytoplasm followed by some disintegration of nuclei and actual necrosis of oligodendroglia. These changes resemble those seen after heavy doses of ionizing radiation. The combination of chlormercuribenzoate, iodosobenzoate, porphyrindin, oxophenarsine-HCl and iodoacetate caused widespread necrosis of neuroblasts in the fetus, but the combination of the last 2 failed to produce selective damage. From these experiments it appears that the neurectoderm is very resistant to metabolic poisons. The neuroblast resists anoxia and hypoglycemia, but is affected by sulfhydryl reagents, steroids, and fluoroacetate. The neonatal neuron is vulnerable to agents affecting glucose metabolism, but retains the sensitivity of the neuroblast to steroids and fluoroacetate. The adult neuron is not susceptible to the agents which injure the neuroblast.

M. L. C. Bernheim (Chem. Abstr.)

The Role of Cholinesterase at the Myoneural Junction. Barnes, J. M., and Duff, Janet I. [*Brit. J. Pharmacol.*, **8**, 334 (1953).]

The response of the rat phrenic nerve-diaphragm to indirect stimulation underwent a succession of changes as its cholinesterase (I) was inhibited by diethyl p-nitrophenylphosphate (II). It was impossible to prevent the response to single stimuli even with high concentrations of (II), though the response to a tetanus failed. Both true and pseudo-(I) were present in rat diaphragm and they responded to inhibitors in the same way as does (I) of other tissues. Fasciculations and enhanced response to single stimuli took place while (I) activity was reduced 50-90 per cent. The power to sustain a tetanus disappeared when only 10 per cent. of the cholinesterase remained but reversal occurred on removing the inhibitor but before appreciable (I) had time to be released from inhibition.

Richard F. Riley (Chem. Abstr.)

Carbon Dioxide and Cortical Spike Frequency. Gellhorn, E., and French, L. A. [*Arch. intern. pharmacodynamie*, **93**, 427 (1953).]

In the cat brain, unilateral separation of the cortex from the underlying structures causes a reversal of the effects of hypercapnia, so that concentrations of 10-35 per cent. CO_2 reduce the frequency of topically induced strychnine spikes on the isolated side. This seems to be due to the elimination of the excitatory effect of CO_2 on the hypothalamus.

M. L. C. Bernheim (Chem. Abstr.)

2. Pharmacology and Treatment

Action of Tetraethylthiuram Disulfide (Antabuse) on Glucose Metabolism. Maldonado, Adriana Tapia. [*Tesis quím., Univ. Chile*, **3**, 135 (1951).]

Antabuse had no influence on the glycemic curve after glucose ingestion. The pyruvic acid in the blood showed normally a marked increase within 30 minutes after glucose ingestion with return to normal at the end of the 1st hour. This temporary peak was abolished and in a few instances reversed. The increase in blood aldehyde was delayed but the change was not statistically significant.

A. E. Meyer (Chem. Abstr.)

Convulsive Threshold Values to Parenterally Injected Pentamethylenetetrazole in epileptic Monkeys. Chusid, Joseph G., et al. [*J. Appl. Physiol.*, **6**, 139 (1953).]

The convulsive threshold to the rapid intravenous injection of 10 per cent. metrazole (I) was 2·9-6·3 mg./kg. in 70 per cent. of 16 monkeys made epileptic by treatment with alumina cream. In control monkeys the threshold was 8·5-29 mg./kg. Intramuscular (I) injections of 8-28 mg./kg. produced motor convulsions, usually focal in onset, in all epileptic monkeys, while none of the controls convulsed with dosages of up to 44 mg./kg., and only 2 of 7 showed convulsions at 48 mg./kg. The convulsive response of 16 epileptic monkeys to 16 mg./kg. was similar whether administered subcutaneously or intramuscularly.

Theresa McKee (Chem. Abstr.)

Convulsive Thiobarbiturates. Richards, Richard K. [*Current Researches Anesthesia & Analgesia*. **30**, 348 (1951).]

Sixteen 5,5 substituted thiobarbiturates were studied in mice, rabbits and monkeys. Mixed sedative and convulsant activity of many of the compounds was observed in mice. In rabbits the convulsive properties became more pronounced. In monkeys almost all of the compounds produced sleep. Subconvulsive doses of most of the convulsant barbiturates protected mice against metrazole convulsions. KARL F. URBACH (Chem. Abstr.)

Penetration of Procaine into the Brain and Convulsive State. Garattini, S., and Genovese, E. [*Atti soc. lombarda sci. med. biol.*, **8,** 17 (1953).]

Metrazole shock causes a higher concentration of procaine in the brain of guinea pigs after intravenous administration of the latter than occurs normally. Electroshock does not have this effect. In strychnine convulsions the effect varies with the severity of the shock. A. E. MEYER (Chem. Abstr.)

Effect of Hexamethonium Bromide on the Cerebral Circulation in Hypertension. Dewar, H. A., et al. [*Brit. Med. J.* (II), 1017 (1953).]

In 6 patients in whom a mean drop of 30 per cent. in arterial pressure was induced with hexamethonium bromide, there was no significant change in mean cerebral blood flow. In 4 of these patients the rate of cerebral O utilization was measured and found to be unaltered by the treatment. MARSHALL E. DEUTSCH (Chem. Abstr.)

Synergy between Phenobarbital and Benadryl as Anticonvulsants. Agolini, G., et al. [*Atti soc. lombarda sci. med. biol.*, **8,** 123 (1953).]

Small doses of benadryl enhance the phenobarbital preventive action against metrazole convulsions. High doses of phenobarbital improve the prevention of nicotine convulsions by benadryl. A. E. MEYER (Chem. Abstr.)

Cerebral Sugar Metabolism During Narcosis. Fregni, R., et al. [*Atti soc. lombarda sci. med. biol.*, **8,** 135 (1953).]

Administration of deoxycorticosterone acetate or glucoside, ether, or barbiturates causes an increase of carbohydrates in the brain. A. E. MEYER (Chem. Abstr.)

Convulsive Effect of Possible Metabolites of Isonicotinoyl Hydrazide and their Combinations. Colizzi, C., and Garattini, S. [*Atti soc. lombarda sci. med. biol.*, **8,** 93 (1953).]

Na isonicotinate does not produce convulsion but the acid amide causes late convulsions when given in large doses. NH_4Cl is convulsant in quantities which could be present if both N atoms of the isonicotinoyl hydrazide (I) were transformed into NH_3. Hydrazine can give late convulsions but only at doses higher than can be produced from therapeutic doses of (I). The mechanism by which isonicotinic acid increases the convulsive power of hydrazine is not known. A. E. MEYER (Chem. Abstr.)

Antagonistic Action of Some Pharmaceuticals towards Convulsions Produced by Isonicotinic Acid Hydrazide (Isoniazid). Cogni, G., and Mihich, E. [*Boll. soc. ital. biol. sper.*, **29,** 27 (1953).]

Convulsions following subcutaneous injections of isoniazid can be relieved by administration of luminal, i.e. delay in the appearance of convulsions and postponement of death. Convulsions after injection of isoniazid are probably due to transformation products of the original molecule. Dormison was very potent in preventing convulsions and death produced by isoniazid. Analogous results were obtained by the administration of p-aminohippuric acid alone and together with Na pyruvate. Pyruvic acid facilitates acetylation. Isoniazid combines with pyruvic acid to check acetylation. There is increased facility of elimination of sulfanilamide and p-aminohippuric acid after acetylation. FRANK W. DANN (Chem. Abstr.)

Substances Synergistic and Antagonistic to the Hypnotic Effect of Barbiturates. Colombo, O., and Rovati, V. [*Boll. soc. ital. biol. sper.*, **29,** 314 (1953).]

The hypnotic effect of pentothal in rats is markedly augmented by Nevanide (p-amino-N, N-diethylbenzamide), even at small doses, although this compound alone has hardly a hypnotic effect in this species. The dinitrile of succinic acid given 1 hour before, abolished pentothal sleep. Thiamine, adenosinetriphosphate, and prostigmine prevent sleep by the barbiturate. A. E. MEYER (Chem. Abstr.)

Favorable Effect of a Low-Calcium Diet on a Periodic Psychosis. Speijer, N. [*Ned. Tijdschr. Geneesk.*, **3,** 2424 (1949).]

In a patient with periodic psychosis, increased Ca in the blood was associated with the psychotic intervals. On a diet low in Ca, the frequency and severity of the psychotic phases diminished. Application of this observation to other cases is discussed. W. C. TOBIE (Chem. Abstr.)

The Vitamin B_1 Treatment of Alcoholic Psychoses. Baldi, F. [*Studi fac. med. senese*, **16,** 48 (1948).]

Pharmacology, physiology, and other aspects are discussed. W. C. TOBIE (Chem. Abstr.)

Serum Cholinesterase After Electroconvulsive Treatment. Laganara, D., and Preziosa, I. [*Ann. Bisceglie*, **1,** 140 (1948).

After electroshock treatment of 30 patients and after seizures in 10 epileptics, serum cholinesterase was greatly increased associated with an increase in acetylcholine. The significance of the increase is discussed. W. C. TOBIE (Chem. Abstr.)

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(R.) indicates a *Review*; the title of the book reviewed is followed by the author's name, thus: "Psychoanalysis and its Derivatives, by H. Crichton-Miller (R.)."

(E.) indicates the *Epitome* section; the title of the abstract is followed by the author's name, thus: "Age and human ability. Miles, W. R. (E.)."

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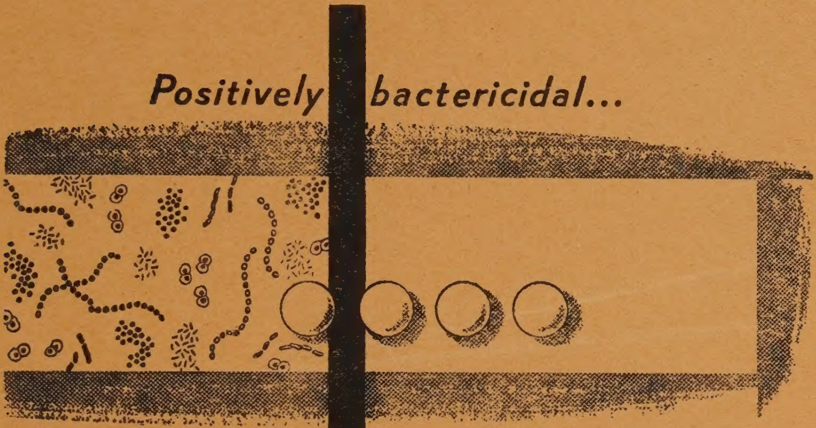

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